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**STABILIMENTI BALNEARI E VALORE  
DELLE AREE COSTIERE**

**Il caso della Costa Marchigiana**

**SEASIDE FACILITIES AND THE VALUE OF  
COASTAL AREAS**

**The case of the Marche Region Coastline**

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*La Regione Marche presenta un tessuto sociale in cui l'industria dei servizi balneari costituisce una componente importante dell'economia, specialmente per le comunità costiere. La seguente analisi si propone di dare un contributo nell'ambito della controversa questione che riguarda la gestione del demanio marittimo italiano. In particolare, la gestione delle concessioni per stabilimenti balneari risulta problematica, con le rispettive licenze che sembrano essere assegnate in quantità elevate e a fronte di canoni estremamente ridotti. Nel terzo capitolo ho condotto un'analisi del valore ricreativo della costa di Civitanova Marche: tale valore risulta molto alto se confrontato con le entrate provenienti dalla riscossione dei canoni demaniali versati dai concessionari degli stabilimenti balneari. In questo senso, una riforma del regime concessorio è fortemente auspicata.*

*The Marche Region presents a social tissue in which the beach service industry represents an important component of the economy, especially for coastal communities. The following analysis aims to give a contribution to the ongoing controversy of the management of Italian maritime domain. In particular, seaside establishments' concession management is problematic, with the respective licenses that seem to be allocated for high quantities and in front of fees extremely reduced. In the third chapter I have conducted an analysis of recreational value for the coastline of Civitanova Marche: such value results to be much high when compared with state revenues coming from the collection of fees paid by concessionaires of bathing facilities. In this sense, a reform of concession system is strongly recommended.*

## INTRODUCTION

Over the past few years, the issue of beach concessions of touristic-recreational type caused several disputes in Italy among public authorities and economic operators. Governments at different levels have faced the problem in many ways but ultimately, in expectation of a comprehensive reform, a series of *ex lege* extensions beyond the initial term have followed for concession licenses (the last one with the Budget Law for year 2019). Nevertheless, despite being at the center of political agendas and subject to an extensive debate, the topic has been explored relatively little by economic research. This reason together with the desire for a better understanding of the topic pushed me to study in more detail the question of public allocation of marine state-owned assets.

I decided to address this topic on a regional level and focusing on the Marche Region for two main reasons: first, the necessity of this kind of approach was needed by the complexity of the matter where different regulatory frameworks are distinguished on a regional basis, with responsibility, both legislative and operational, left to the different regional and municipal authorities. Thus, in my judgement, it made more sense to circumscribe the analysis to a single regional entity rather than jump into risky generalizations. Second, a certain difficulty to recover univocal quantitative information on beach concessions was noticed since the preliminary phase of the research. Therefore, geographic proximity of the writer

to the investigated area represented an asset to get a greater access to information and verify their truthfulness. In this sense, the situation of Marche Region represents a meaningful example of a regional economy that relies heavily on the business of beach services.

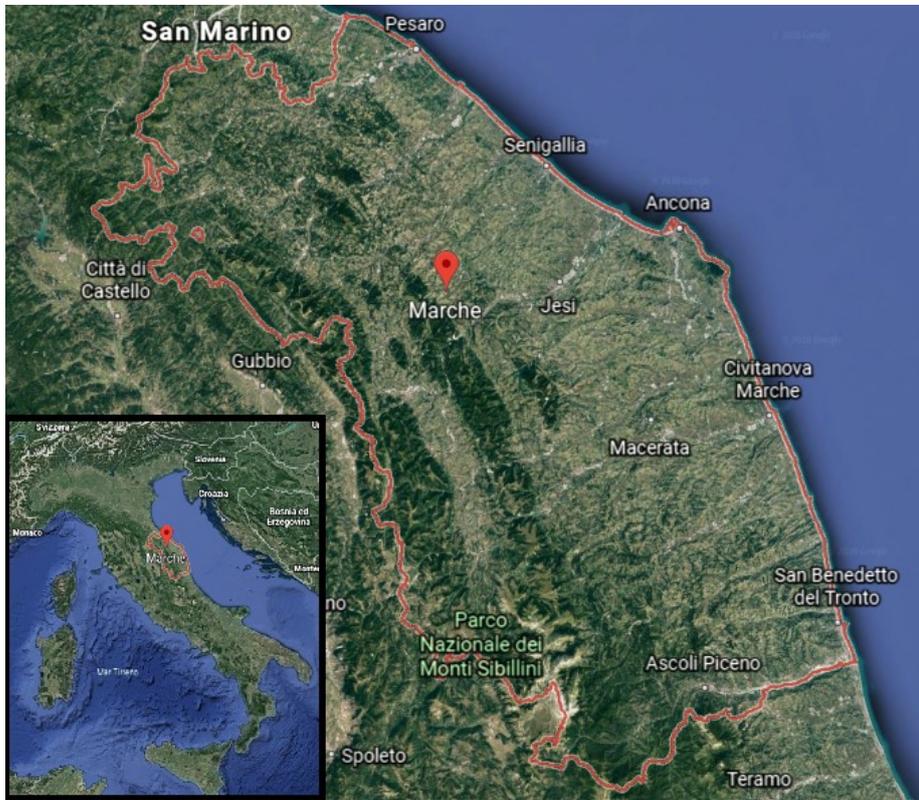
In the first chapter, an overview on the regional context will be provided along with a summary of the legal framework for maritime public domain, starting from the European, then passing to the National and finally to the Marche regional level. Afterwards, in the second chapter, the system of beach concessions will be outlined, covering specifically the allocation and pricing questions. Then, in the third chapter, a benefit transfer approach through the application of a meta-analytical model will be tested for the policy site of Civitanova Marche. The detected monetary value will be later compared to state turnovers generated by the corresponding concession fees paid by seaside establishments' concessionaires. Finally, possible solutions for a reformed system will be proposed in the last section.

## 1. CONTEXT OF THE RESEARCH

### 1.1 The Coastline of Marche Region

In the Marche Region, the coastal area extends for approximately 173 km and it accounts for 2% of Italian coasts. The total area is subdivided into 23 municipalities with a resident population of approximately 600.000 inhabitants, almost 40% of regional population according to ISTAT (2020). The regional coastline represents a complex unit that has different morphological and evolutionary characteristics. Two sub-areas can be distinguished: the northern area between Gabicce and Ancona long around 90 km and a southern area that goes from Ancona to the mouth of Tronto river that expands for 80 km (Curzi et al., 1991). Like shown in Figure 1, the coast has a straightaway conformation, with both sandy and shingle beaches and it is mainly characterized by low-lying coasts (81%) interrupted by brief stretches of coastline with cliffs (19%). It shows an orientation NW – SE above Ancona, then *Monte Conero* promontory forms a relevant morphological discontinuity that ends to south with beaches oriented NNO – SSE until the mouth of *Tronto* river (Acciari et al., 2016). The beach that generally extends for few dozen metres towards the inland goes on without significative changes into the waters of the Adriatic Sea where backdrops are predominantly low. The only exceptions of relevance to that kind of morphology are given by the northern and southern extremities of the regional coastline, besides the *Riviera del Conero*.

FIGURE 1: The Marche Region.



Source: Google Earth

The northern part is in fact characterized by the promontory of Gabicce (Figure 2) that is located between the border with Emilia-Romagna and the mouth of the river Foglia and it is constituted by several hills moulded in the sandstone close to the seashore and reach heights of almost 200 metres with Monte San Bartolo that stays at 197 m on the level of sea. On this relief, cliffs are present on the North-East side while a rural landscape stands out the South-West. The action of various

atmospheric agents like rains and wave motions causes the retreat of the shoreline that is subject to frequent landslides due also to the scarce size of rock layers.

FIGURE 2: Promontory of Gabicce.



*Source: Google Image.*

In proximity of the southern border of the regional coastline, between Pedaso and Cupra Marittima, slopes of considerable height (even above 100 metres) are present. Then, a discontinuity in the coastal area is represented by the relief of Monte Conero (572 m above the sea level, Figure 3) that stands with high cliffs of calcareous nature on which basis it is present a narrow rocky beach and to its

extremes a band of clay rocks. The promontory of *Monte Conero* geographically represents the only relief of the Adriatic coast from the Venetian Lagoon to the Gargano. It is characterized by steep slopes seawards marked by caves and cliffs whereas it stands out with less gradient towards the inland.

FIGURE 3: Promontory of Monte Conero.



*Source: Google Image.*

Two regional parks of great naturalistic importance are present, *Parco Naturale del Monte San Bartolo* and *Parco Regionale del Conero*, in which priority habitats and species are configured like it is defined by Directive 92/43/CEE. In addition, there is also the natural reserve *Riserva Regionale della Sentina* (Figure 3) in the province of Ascoli Piceno that form a smaller area of significant naturalistic value.

FIGURE 3: Riserva Naturale Regionale della Sentina.



Source: Google Image.

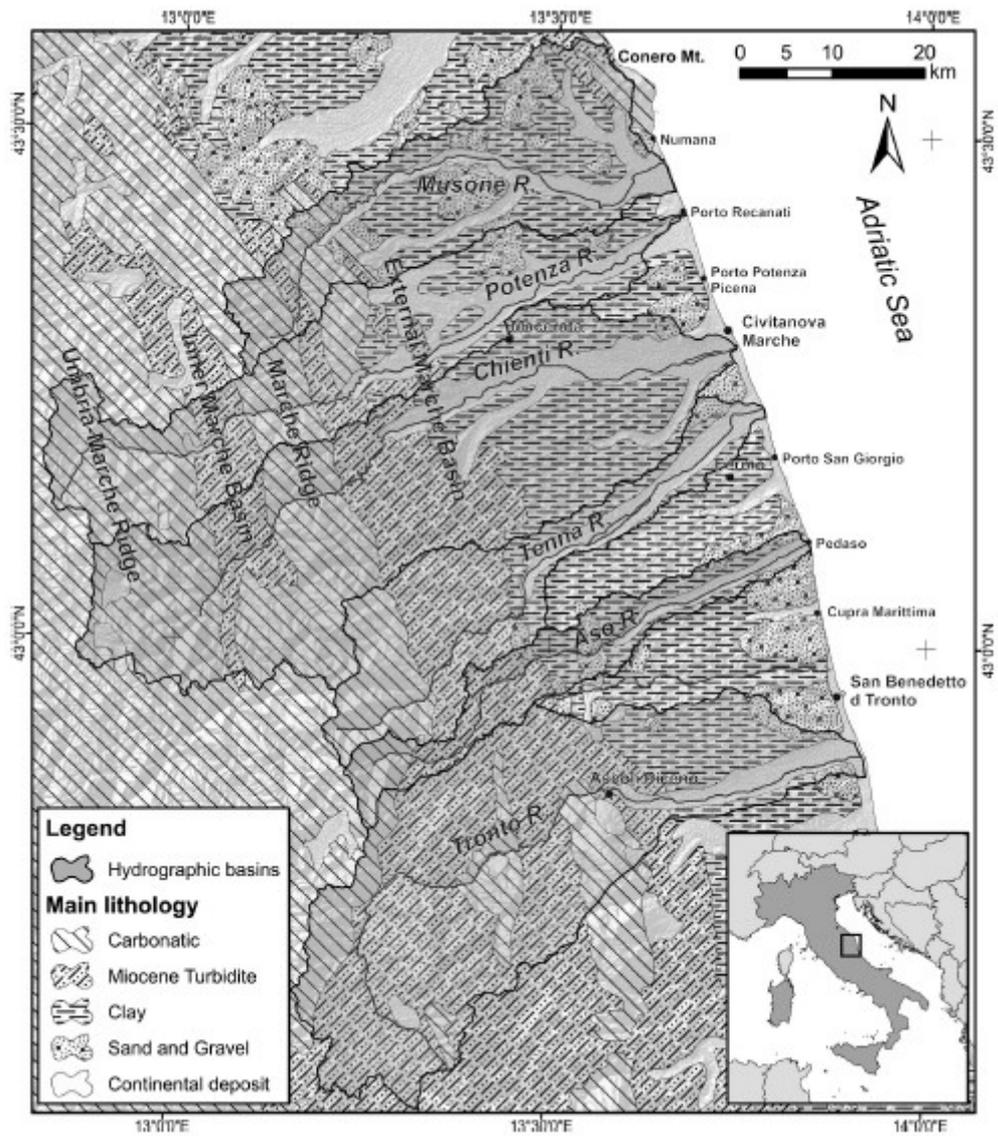
### 1.1.2 Orographic Structure and Climate Characteristics

The orographic structure of the region (Figure 4) is characterized by a steady drop in altitude going from the western side to the coast: this configuration enables that almost the entire part of waterways present in the regional area flows into the Adriatic Sea. The flowing into the sea happens generally through non-ramified estuaries that do not significantly change the coast profile. Two main sectors perpendicular to the shoreline are recognizable: moving from West to East, over the Umbria basin, we find the mountain range of *Appennino Umbro-Marchigiano* in which highest altitude are reached (*Monte Vettore* 2.422 m) and it borders to south

with *Appennino Laziale-Abruzzese* to whom it follows a wide hill belt. If we move to the North, the mountain sector, where massifs of *Sibillini* and *Monti della Laga* are presents, divides into two parallel ridges (respectively *Umbria-Marche Ridge* to the West and *Marche Ridge* to the East) separated by the basin near Camerino (*Inner Marche Basin*). Then, to the East, the hill belt drops in a smoother way to the sea through the basin (*External Marche Basin*) (Minetti et al., 1991).

The hill belt of Marche that extends for around 200 km<sup>2</sup> from North to South is crossed by several valleys traversed by 13 main rivers of torrential nature that represent a possible source of contamination for seawater: Conca, Foglia, Metauro, Cesano, Misa, Esino, Musone, Potenza, Chienti, Tenna, Aso and Tronto.

FIGURE 4: The orographic structure of Marche Region.



Source: Acciarri et Al. (2016).

In the entire region backdrops are made of sandy and muddy sediments of fluvial origins, that derived from the Alpine and North-Apennine chains. Sediments

accumulate in proximity of estuaries and then the wave motion scatter them into the sea (Cencini, 1995). Backdrops fall uniformly till 60 m of depth in the zone north to Monte Conero and until 80 m in the area East to the promontory. Around the promontory cliffs and rocky backdrops are present.

The climate of the region is conditioned by the orography, moving from typical Mediterranean weather of the coastal area to mountain climate proper of locations situated at higher altitude. This configuration brings with it a steady decrease of average temperature (mainly in winter season) and a water shortage during summer that boosts with the increasing of height and distance from the coast, due to a greater continentality. Average temperatures vary from around 16° C of San Benedetto del Tronto (with 6°C in the colder month and more than 22°C in the warmest) to lower temperatures on mountain reliefs (Bisci and Fazzini, 1997). Annual precipitations take place mostly during the half-seasons and vary from 700 mm to the south-east to over 2.000 mm on mountain reliefs. The current trend is one of general increase of temperatures with an increase of rainfall (mainly connected to thunderstorms) especially on the hill zone (Bisci and Fazzini, 1997). Tides are weak with an average width of approximately 20 cm to the North and 40 cm to the South, whereas maximum width reaches 70 cm (Acciari et al., 2013).

### **1.1.3 Mid Adriatic Coastline and Urbanization Process**

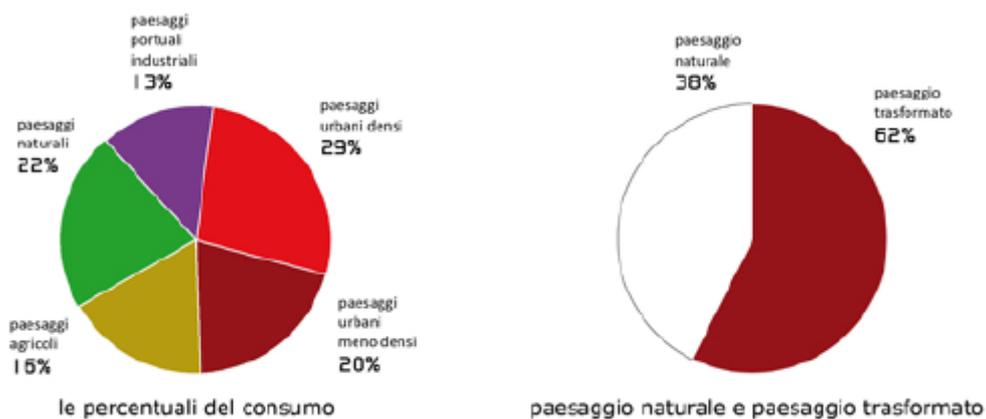
In the given context, the Marche Region coastal area results to belong part to the High Adriatic and part to the Mid Adriatic area. In this research we want to analyse the sub-area belonging to the Mid Adriatic that is represented by the coastal territory going from Ancona to San Benedetto del Tronto municipalities. In this area, as observed by Bisci and Dramis (1991), wide beaches (on average 100-150 m) are present both of shingle and sandy nature in correspondence of the alluvial plains of main rivers, while at the bottom of the cliffs that lag behind, running along the seashore, narrower coastline of around 40-70 m are present. The only exception is marked by a crag next to the sea in proximity of Pedaso.

The intense urbanization happened between the 60s and the 70s, along with the making of prominent infrastructures for viability (A14 highway and secondary road network), has significantly altered the natural coastal landscape so that it is possible to identify a unique inshore conurbation that extends from *Monte Conero* promontory to *San Benedetto del Tronto* beyond to the Abruzzo territory like stated by Acciarri et al. (2017). Several fluvial estuaries and natural protected areas (*Parco Naturale del Conero* and *Riserva Naturale Regionale della Sentina*) represent few spaces that are still natural and where the features of the typical coastal environment can be observed (Acciarri et al. 2017).

In a study conducted by Legambiente (2011) on regional coastal consumption, it was pointed out that on a total of 173 km (from Gabicce to San Benedetto del

Tronto) 98 km of coast result to be already transformed for urban and infrastructural usage, representing 62% of the total amount. More specifically, 24 km are occupied by infrastructures (mostly ports) and industrial plants. Besides, 51 km have characteristics that can be likened to high-density urban environment, 35 km of coastline occupied by medium and low-density urban settlements, then 29 km of coast that can be classified as agricultural and rural landscapes and finally 40 km of natural environment with low presence of human made manufacture (Figure 5). Hence, it can be considered that only 38% of coastal lands result to be preserved by anthropogenic activity.

FIGURE 5: Coastal transformation and distribution in Marche Region.



Source: Legambiente (2011).

What is maybe more useful to underline is that the process of urbanization is still going on at a high pace. Just in the time intercurrent from 1986 to 2006, 7 km of

shoreline (corresponding to 6.5% of the entire urbanized area) has undergone artificial transformation during the considered time span. This phenomenon of further erosion of the regional stock of coastline involved for the vast majority the construction of new houses, expansion of already existing conurbations along the coastline and, for the most part, in order to meet the increasing population density of the coastal area.

It emerges a situation of robust growth in quantity of anthropogenic pressure that seems to involve almost uninterruptedly the totality of coastline, even if with different degrees of intensity. Moreover, it appears that further exploitation of the environment has been stopped only where morphological boundaries prevented a strong urbanization to take place: it is shown especially by the level of natural preservation that is still present in the two promontories of Monte Conero and Monte San Bartolo.

## **1.2 Recreational Business and Importance of Seaside Tourism**

Like in many other areas of the central and northern Adriatic, the coastline of Marche is subject to important anthropogenic pressure, due mainly to the high touristic presence during summer. Tourism is one of the main sectors of the coast that sustains a series of activities like hospitality, restaurant services, and beach activities among the others.

According to an estimation for year 2014 by Isnart (2015), tourism is responsible for a direct economic impact of almost €1.3 billion in the Marche Region that corresponds to 3.3% of the regional GDP. On the considered amount, 68.4% of total income is generated by seaside tourism. On national level, Isnart (2014) claims that Marche Region reaches the 12<sup>th</sup> spot among regions for number of sleeping accommodations providing in total an amount of 5.654 facilities whose 41.3% along the coast and around 337.000 bed places of which over 74% in coastal municipalities. As mentioned above, the strong process of urbanization between 60s and 70s, also in the seaside areas, caused the development of artificial permanent facilities, as a direct consequence of the Italian industrial exponential development. Therefore, residential areas and coastal villages have grown significantly occupying firstly areas next to beaches and then those behind, as much as they merged into a unique urban agglomeration. Currently, among city centres, expanding residential areas, industrial districts, ports, and accommodation facilities, it is possible to detect a continuous urbanized area with few margins still not modified by anthropogenic pressure.

First evidence of beach infrastructures was registered since the half of 19<sup>th</sup> century (1853 in Senigallia and 1865 in San Benedetto del Tronto), then during the post-World War I period the first consistent growth of bathing facilities happened with the building of further accommodations and especially the urban planning of promenades. Around 50s and 60s the realization of bathing facilities started until it

arrived at the current organization characterized by the alternation of beach concessions, for the greater part, to free access beaches, generally deprived of services.

### 1.2.1 Characteristics of Seaside Tourism

Regarding the different typology of touristic supply and according to Isnart report (2015), in the region the seaside sector represents the economic business that attracts by far the greater number of tourists, with 68.4% of total visits linked to seaside tourism, while places of historical or artistic interest reach 16%, mountain-related are 9.6% and other places (religious, thermal, and hilly destinations) represents approximately 6% (Table 1).

TABLE 1: Reason of trips to Marche Region (%).

Attraction	Italians	Foreigners	Total
Sea	70.9	56.9	68.4
Artistic site	15.1	19.8	16.0
Mountain	9.9	7.8	9.5
Green	3.0	13.4	4.8
Other	1.1	2.1	1.2
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

*Source: Osservatorio turistico regionale, Unioncamere Marche. Isnart (2015).*

Regional tourism is characterized by a huge component that consists in Italian national demand (82.2%) and usually the habitual vacation-type is the most diffused, both among Italian and foreign vacationers. According to data presented in Table 2 about national tourism composition, we can observe that Italian travellers come mostly from Lombardia (25.5% of the considered Italian tourists), Lazio (13.5%) and Emilia-Romagna (13.1%), while internal regional tourism accounts for 18.7% (Isnart, 2015). From Table 3, we note that foreign tourists principally come from Germany (21% of foreign visitors), United Kingdom (16.6%), Belgium (8.4%), Netherlands (6.9%), France (5.8%) and Russia (5.2%) (Isnart, 2015).

TABLE 2: Provenience of Italian tourists (%).

Region	Percentage
Lombardia	25.5
Marche	18.7
Lazio	13.5
Emilia-Romagna	13.1
Piemonte	5.1
Veneto	5.1
Campania	4.4
Other	14.5
Total	100.0

Source: Osservatorio turistico regionale, Unioncamere Marche. Isnart (2015).

TABLE 3: Provenience of foreign tourists

Country	Percentage
Germany	21.0
United Kingdom	16.6
Belgium	8.4
Netherlands	6.9
France	5.8
Russia	5.2
Austria	4.5
Romania	4.4
Other	27.2
<b>Total</b>	<b>100.0</b>

*Source: Osservatorio turistico regionale, Unioncamere Marche. Isnart (2015).*

Furthermore, the report highlights a trend of rising flows of international tourists. In fact, even if the region stands as destination for national tourism, international flows registered a positive variation especially in term of visitors on regional territory (with an increase of 3% in 2015) and a stability of domestic annual attendance.

In accordance with data from Danovaro et al. (2012) as cited by Acciarri et al. (2017), Marche Region registers the presence of 758 owned businesses involving beach establishments, 61.958 parasol locations, 10.333 cabins for a full capacity of 494.278 users. In this sense, it emerges a situation in which coastal communities lean largely on seasonal tourism as one of their main sources of income, underling

the fundamental role played by this sector in the whole socio-economic system of Marche, similarly to the other Italian coastal regions.

### **1.3 Regulatory Framework of Beach Concessions**

Regarding marine state-owned regional assets, administration of public concessions seems to be problematic especially when looking to assignment and pricing procedures that involve those kinds of goods for touristic and recreational use. It must be said that this scenario lies in a national context of inefficiency of allocation of the state property that affects the whole Italian system of coastal management. The matter of beach concessions is subject to a complex regulation and this is where problems primarily arise.

#### **1.3.1 EU Legislation and the Bolkestein Directive**

An element that had an influence on the concession issue was the implementation of the *Directive 2006/123/EC of the European Parliament and of the Council of 12 December 2006 on services in the internal market*, better known as the *Bolkestein directive*, that applied also on the matter of marine state-owned asset concessions, in particular to what may concern duration and renewal procedures of concessions. In fact, the directive introduces a generic legal framework for a wide variety of services on the internal market, in order to ensure freedom of settlement and free

circulation of services among member states and it shall be applied to requirements that affect access to execution of services or its own course.

The directive has been transposed in Italy with the *Legislative Decree 26/3/2010 n. 59* integrated by *Legislative Decree n. 147 of 2012*. On article 12, the directive provides that whenever the number of authorizations available for a supposed activity would be limited because of scarcity of natural resources or applicable technical capacity, Member States apply a selection procedure within potential candidates that presents guarantees of impartiality, transparency and notably provides an adequate publicity of the commencement of the procedure as well as its course and competition. On those cases, the authorization is released for a limited and adequate duration and cannot provide the automatic renewal process, nor agree other advantages to the out-going concession holder or to people related to the latter. However, in defining selection regulation, Member States could take account of considerations on public health, objectives of social and workers' safety, protection of the environment, lifeguarding of cultural heritage and other reason of collective interest in observance of European Law. Here the full text of article 12<sup>1</sup> is provided:

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<sup>1</sup> Source: European commission (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32006L0123>)

## Article 12

### ***Selection from among several candidates***

1. *Where the number of authorisations available for a given activity is limited because of the scarcity of available natural resources or technical capacity, Member States shall apply a selection procedure to potential candidates which provides full guarantees of impartiality and transparency, including, in particular, adequate publicity about the launch, conduct and completion of the procedure.*

2. *In the cases referred to in paragraph 1, authorisation shall be granted for an appropriate limited period and may not be open to automatic renewal nor confer any other advantage on the provider whose authorisation has just expired or on any person having any particular links with that provider.*

3. *Subject to paragraph 1 and to Articles 9 and 10, Member States may take into account, in establishing the rules for the selection procedure, considerations of public health, social policy objectives, the health and safety of employees or self-employed persons, the protection of the environment, the preservation of cultural heritage and other overriding reasons relating to the public interest, in conformity with Community law.*

### **1.3.2 Beach concessions in Italy**

As for the vast majority of countries and according to Italian law, beaches are property of the state and belong to the *Demanio Marittimo* that indicates the

ensemble of goods that are aimed to satisfy public interest concerning sea navigation, traffic and, more in general, every kind of sea public use. The law regarding this topic is threaten in art. 822 and following of the Italian Civil Code and in art. 28 of Navigation Code (*Codice della Navigazione*). Art. 822 of civil code states as follow:

***Demanio pubblico.***

*“Appartengono allo Stato e fanno parte del demanio pubblico il lido del mare, la spiaggia, le rade e i porti; i fiumi, i torrenti, i laghi e le altre acque definite pubbliche dalle leggi in materia; le opere destinate alla difesa nazionale.*

*Fanno parimenti parte del demanio pubblico, se appartengono allo Stato, le strade, le autostrade e le strade ferrate; gli aerodromi; gli acquedotti; gli immobili riconosciuti d'interesse storico, archeologico e artistico a norma delle leggi in materia; le raccolte dei musei, delle pinacoteche, degli archivi, delle biblioteche; e infine gli altri beni che sono dalla legge assoggettati al regime proprio del demanio pubblico.”*

In the first comma, goods belonging to *demanio necessario* (or *demanio naturale*) are declared as property of the state because of their natural attitude to satisfy public interests. Goods that are presented in the second comma belong to *demanio*

*accidentale*. The notion of Demanio Marittimo contained in the Civil Code has been specified and amplified as follow by the Navigation Code in art. 28:

*“Fanno parte del demanio marittimo: (a) il lido, la spiaggia, i porti, le rade; (b) le lagune, le foci dei fiumi che sboccano in mare, i bacini di acqua salsa o salmastra che almeno durante una parte dell’anno comunicano liberamente col mare; (c) i canali utilizzabili ad uso pubblico marittimo.”*

Therefore, seashores, beaches, bays, lagoons, mouths of rivers and salt-water basins are all subject to a special law called *regime demaniale di diritto speciale*, according to art.822 of Civil Code and art.28 of Navigation Code. In this way, beaches and all goods belonging to the Demanio Marittimo are inalienable, not subject to usucaption, not subject to prescription and non-expropriable.

Goods listed in art. 822 of civil code and 28 Navigation code are defined as state-owned assets and this imply the duty of satisfying a national interest besides private interest, that comes to create whenever exclusive rights on the good are assigned. Among different scopes, the touristic and recreational purpose have assumed an ever-growing weight (like bathing facilities, restaurants, sport facilities, etc.)

In this context, the economical connotation of marine state-owned assets makes beaches a coveted target in the making of those activities that is realized in the legal form of concessions that should play a role in the realization of the social interest.

Hence, the state has the duty to satisfy collective interest, even if granting a concession for the good. As stated by De Benedetto (2011), the regulation should be addressed to ensure a safe financial revenue for state, regional and municipal budgets as well as to guarantee a trustable context that favour entering enterprises in order to reduce administrative costs and consequentially open to competition in the sector, ensure consumer and citizen rights, coordinate economic development of the sector with objectives of integrated management of coasts.

#### **1.3.2.1 Source of Regulation about Beach Concession**

The most important starting point of the systematic reconstruction of the discipline of state-owned assets for touristic and recreational purpose in the case of coastlines passes through art. 37 of the Navigation Code of 1942. Articles that involve in general goods of *Demanio Marittimo* are art. 28 and art. 55. Different to other European regulations, in Italy marine state property was subject to a special regulation (*regolamento speciale*, r.d. 327/1942) inside a general discipline in the civil code (art. 822 del r.d n262/1942).

Besides the *Navigation Code*, it is added *law n. 494/1993* (that replace *d.l. n. 400/1993*) that add some enforcement in matter of marine state-owned assets for touristic and recreational purpose with specific rules and principles, sometimes derogating from general law for public goods. This regulation act on determination

of fees, innovations regarding management relative to *Demanio Marittimo* and modify several articles of navigation code and related rules of execution.

*Law 494/1993* at art. 1 contain a list of activities for which it is possible to give a marine concession:

*01. 1. La concessione dei beni demaniali marittimi può essere rilasciata, oltreché per servizi pubblici e per servizi e attività portuali e produttive, per l'esercizio delle seguenti attività:*

- a) gestione di stabilimenti balneari;*
- b) esercizi di ristorazione e somministrazione di bevande, cibi precotti e generi di monopolio;*
- c) noleggio di imbarcazioni e natanti in genere;*
- d) gestione di strutture ricettive ed attività ricreative e sportive;*
- e) esercizi commerciali;*
- f) servizi di altra natura e conduzione di strutture ad uso abitativo, compatibilmente con le esigenze di utilizzazione di cui alle precedenti categorie di utilizzazione*

In addition, *law n. 88/2001* establishes “new disposition in relation to investments in marine enterprises” that with article 10 (“Disposizioni concernenti le concessioni dei beni demaniali marittimi”) emphasized features of derogation around the discipline of beach concessions. First comma of article 10 introduced mechanism

of automatic renewal of licences for marine state-owned assets, only maintaining the power of “concession withdrawal” that is in art.42, comma 2 of Navigation Code.

This fragmented legal framework was updated again in the context of the approval of *Legge Finanziaria 2007 (law n. 296/2006)*:

- It modified article 3 of *d.l. n.400/1993* (through comma 4-bis), providing the possibility to be holder of marine concessions for a duration not inferior to 6 and not exceeding 20 years in reason of the economical entity of planned investments and other criteria.
- It integrated the discipline for the possible causes of decadence for the considered marine concessions (after comma 2-bis art. 01, *d.l. 5/10/1993, n.400* converted with modifications by *law 4/12/1993 n.494*), adding the comma 2-ter and establishing that concessions must be withdrawn whenever the concession holder make him or her responsible of serious building violations, which constitute non-compliance of the obligations of concession deal (art. 5 of president of republic decree 13 September 2005 n. 296).

Considering this perspective, Del Dotto (2011) observes a situation in which regulations are added with maintenance of the previous discipline with the inability to act on principles of automaticity and perpetuity of concessions.

### **1.3.3 Regional Regulation and the Marche Regional Framework**

In this discipline, another layer of legislation is added by regions. As a matter of fact, Italian state has delegated to regional and local authority administration tasks with *Legislative Decree 31/03/98 n.112*. Especially in art. 105 comma 2 letter L: in this way, the state has given complete responsibility to regions for the issuance of concessions included goods belonging to *Demanio Marittimo*.

Regional authorities of Marche regulated discipline on marine state-owned assets and beach concessions essentially with *regional law 17/05/99 n. 10* and *regional law 11/02/2010 n.7* aiming respectively to the reorganization of regional and local functions for the new assigned competences and to the creation of specific rules for property of *Demanio Marittimo*. In art. 31 of *regional law 17/05/99 n.10*, regional authorities outsource to municipalities administrative tasks related to the issuance of concessions of *Demanio Marittimo* and of territorial coastal area for touristic and recreative purpose. Then, *regional law 11/02/2010 n. 7* reaffirms responsibility of municipalities at art. 3 and establishes criteria for the issuance of touristic-recreational concessions and modality of renewal at art.4.

Apart from this, art. 51 of *Legislative Decree 31/03/98 n.112* appointed regions competence about planning and management of defence intervention on coastal areas that Marche Region provided with the adoption of an integrated plan (*Piano di gestione integrata delle aree costiere*) through *regional law 14/07/2004 n. 15* then substituted by a new plan (*Piano di Gestione Integrata delle Zone Costiere-*

*Piano GIZC*) through *DACR 104 of 06/12/2019*. The plan contains general indications also on the matter of touristic and recreative use of area of *Demanio Marittimo*, on which basis each coastal municipality must draft its own planning of management (*Piano Particolareggiato di Spiaggia*) that regulates intervention on coastal areas in compliance with general programming on environment and landscape.

## **2. MANAGEMENT SYSTEM OF BEACH CONCESSIONS**

With the passing of time, it emerged a dynamic concept of marine state-owned goods that gave more space to considerations on socio-economic opportunity of their use and management rather than pure defence and conservation of public domain that must realize in accordance with objectives of collective interest. In the given contest, the institute of concession has moved away from its original nature of instrument used only in exceptional situations and has now become habitual in coastal management aiming to constitute an increased benefit for local community and economy like it is for touristic sector as well as pleasure sailing. However, the way in which licences are issued seems to be inadequate to guarantee the right allocation and pricing for the considered public good.

### **2.1 Criteria for the Release of Concessions and the Allocation Problem**

Administrative procedure of concession allocation is respectively regulated by *Navigation Code* at art. 36 and following and by its implementing regulation (*D.P.R. 15/2/1952, n.325, art. 5 and following*) modified by *d.l. n. 400/1993* converted with *Law 494/1993*. From the above, it results that the choice of concessionaire in the assignment process is always discretionary. In the case of multiple applications, rules indicate general criteria of preference towards a concession proposal that offer more consistent guarantees of an adequate usage (art.

37, comma 1 of *Navigation Code*) that can be assumed from economic capacity and financial reliability along with a more adequate use in term of public interest on the basis of judgment of the competent administration. In this way, it emerges a discretionary process even if decision-makers are required to proceed with a comparative valuation and give explanation of the decision taken. More precisely, special criteria are given about concessions of touristic and recreational purpose (art. 37, comma 2) in favour of proposals that involve not fixed and completely removable facilities on public land that must be proven by a technical assessment as well as a preference towards previous concessionaire in situation of renewal, hence setting up a pre-emptive right. However, several Regional administrative courts<sup>2</sup> have established that the former represents only a subsidiary criterion in the assignment procedure that can be used only if the comparative valuation on applicants does not highlight significant favourable terms among new received proposals and lastly *Decree-Law n. 194/2009* has also repealed the right of first refusal in favour of the previous holder that was provided by art. 37 in response to an infringement procedure led by European Commission (reference number 2008/4908). When it does not occur reasons for preference, a restricted tender should be carried out (according to art. 37 comma 3) and thereby not necessary opened to all potential candidates.

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<sup>2</sup> See sentences of TAR Sicilia-Catania, 1/6/1994, n. 1115 and TAR Sardegna 22/2/1996, n. 312

As said before, *Legislative Decree 31/03/98 n.112* passed administrative responsibility to regional and local authorities, hence several differences arise among regions when coming to assignation and release of licence. In Marche Region and in line with other regional authorities, *Regional Law 17/5/1999 n.10* attributed administrative duties on maritime domain to municipalities each one competent for its own territory. At the same time, with *Regional Law 11/2/2010 n.7* regional authorities maintain responsibilities on planning and general guidance for the considered areas. Therefore, it is duty of competent municipality to release concessions on maritime state-property and therefore each one of them serves as a decision-maker in complete autonomy, respecting all the regulations in force and according to its own *Piano Particolareggiato di Spiaggia*.

### **2.1.1 The Presence of Different Regional Approaches**

In Marche Region where the amount of state-owned marine concessions is 4.375 (whose 910 are beach establishments and 87 among camping, sports and touristic facilities), about 62% of regional coastline is occupied by touristic and recreational concessions as stated by Legambiente in its report on beach management (2019). This result must be compared to a national general situation in which occupied beaches represent a smaller portion (about 40%, Table 4).

TABLE 4: Overview on regional concession systems.

Region	Beach length	Total number of concessions on maritime domain	Concessions for beach establishments	% of sandy beach occupied by beach establishments, campings, sports clubs and touristic facilities
<b>Abruzzo</b>	114	1.456	647	47.5
<b>Basilicata</b>	44	417	102	28.1
<b>Calabria</b>	614	4.387	1.488	28.1
<b>Campania</b>	140	3.967	916	67.7
<b>Emilia-Romagna</b>	131	3.795	1.209	68.3
<b>Friuli-Venezia-Giulia</b>	64	1.336	73	20.3
<b>Lazio</b>	243	3.217	654	40.5
<b>Liguria</b>	114	8.984	1.175	69.8
<b>Marche</b>	113	4.375	910	61.8
<b>Molise</b>	32	397	47	19.6
<b>Puglia</b>	303	5.010	968	38.6
<b>Sardegna</b>	595	4.655	574	20.6
<b>Sicilia</b>	425	3.798	680	22.2
<b>Toscana</b>	270	4.744	1.291	51.7
<b>Veneto</b>	144	2.081	370	39.6
<b>TOTAL</b>	3.346	52.619	11.104	42.4

Source: Legambiente (2019).

At national level, it does not exist any legislation that determine the maximum percentage of concessions admitted but some regions have fixed a maximum threshold. In Marche Region, the new GIZC plan (art. 12, *DACR 104 of 06/12/2019*) requires a minimum of 25% of free accession beaches in relation to the total seafront

of every municipality but it result to be a soft limitation if we see to other Italian regions (Table 5). In fact, if we consider only regions that put limitation in the normative (10 out of 15 coastal regions) it emerges that an average minimum value of 35.5% of coastal areas in respect of the total amount should be prevented by law from concession.

TABLE 5: Minimum quota of free access beach.

Region	Minimum percentage of free access beach or equipped free beach (%)
Puglia	60
Sardegna	60
Lazio	50
Liguria	40
Molise	30
Calabria	30
Marche	25
Emilia-Romagna	20
Campania	20
Abruzzo	20
Friuli-Venezia-Giulia	0
Veneto	0
Basilicata	0
Sicilia	0
Toscana	0

Source: Legambiente on Regional regulations (2019)

In Puglia, *Regional Law 17/2006 n.17* fixed a minimum percentage of 60% for free access beaches defining the region as the one with the strictest parameters on space

provided for concession areas. Sardegna regulated administrative function for touristic and recreative purpose through *Deliberazione G.R. 12/8 of 5/3/2013* and *Deliberazione G.R. 10/5 of 21/2/2017*. According to them, typology and areas devoted to maritime concessions are defined in relation to nature and morphology of the beach with related criteria on maximum space that can be occupied: spatial extension cannot overcome 40% of total shoreline for urbanized area guaranteeing free access to 60% of the area. The limitation becomes more stringent when coming to natural landscape in which 80% of the area must remain available for free accession. Then, additional areas where is not possible to issue concessions are established such as beach-type of length minor to 150 m. In Lazio *Regional Law 26/6/2015 n. 8* goes toward a more equal balance for shoreline accessibility. The law requires that at least 50% of beach are free for public use: municipalities that do not follow the regulation after the entry to force are not allowed to issue new concession agreements and are expected to plan a process of realignment in order to reach the legal proportion at the expiration of the outstanding concessions. Moreover, the possibility of an automatic renewal is abolished and the necessity of a public procedure for tendering is reaffirmed, putting in this way the discipline in line with the Bolkestein Directive. A more indulgent management is in force for other regions like Emilia-Romagna where *Regional Law n. 9/2002* imposes a minimum proportion of free access beaches of 20% but the proportion that must be maintained is calculated on the whole regional coastline and not on every single

municipality. Hence, compliance with the rule is favoured also by the existence of protected areas in the north of Comacchio and Ravenna that are free from concessions. In Liguria *Regional Law 13/2008* establishes the minimum percentage of 40% for free use of beaches on the total coastline but a main problem is represented by the fact that the normative does not provide sanctions for local administration that violate the law. Similarly, Molise is provided with a regional law of 2006 that fix a minimum limit of 30% but has not been implemented by its four coastal municipalities. In this way, it is strengthened the conviction that even if limitations are imposed by regulation, problems may arise in guaranteeing a law-abiding environment at local level. Then, if we look to Calabria region, we see that a minimum 30% of coastline should be preserved according to the normative while in Campania and Abruzzo the threshold is set at 20%. On the other hand, Toscana, Basilicata, Sicilia, Friuli Venezia Giulia and Veneto have not established any limitation on the amount of beach concessions at today.

### **2.1.2 Duration of Concessions and *ex lege* Extensions**

The discipline provides a duration comprised between 6 and a maximum of 20 years for touristic-recreational purpose. It is stated at art.3, comma 4-bis of *Decree Law n. 400/1993* (as modified by *law n. 296/2006*).

As we said in the first chapter, regulation originally provided the possibility of an automatic renewal of licences. After the entry into force of the *Bolkestein Directive*,

the discipline regarding duration of licences has undergone a process of reforms and modifications that ultimately led to a formal abrogation of the institute of automatic renewal. Until year 2011, renewals of licences were guaranteed by the legal framework and formalized by art. 1, comma 2 of *Decree Law n. 400/1993* that provided beach concession to have a duration of six years and to be automatically renewed for further six years simply after the holder's request, although without prejudice to the right of withdrawal that belonged to the competent administration as stated by art. 42 of the *Navigation Code*. Art.1, comma 2 of *d.l. 400/1993*, later modified by *law n. 88/2001* at article 10, stated as follow:

<< *Art. 10. (Disposizioni concernenti le concessioni dei beni demaniali marittimi)*

1. *Il comma 2 dell'articolo 01 del decreto-legge 5 ottobre 1993, n. 400, convertito, con modificazioni, dalla legge 4 dicembre 1993, n. 494, è sostituito dal seguente:  
"2. Le concessioni di cui al comma 1, indipendentemente dalla natura o dal tipo degli impianti previsti per lo svolgimento delle attività, hanno durata di sei anni. Alla scadenza si rinnovano automaticamente per altri sei anni e così successivamente ad ogni scadenza, fatto salvo il secondo comma dell'articolo 42 del codice della navigazione".*
2. *2. All'articolo 45-bis del codice della navigazione le parole: ", in casi eccezionali e per periodi determinati," sono soppresse. >>*

Eventually, article 11 of *Law n. 217/2011* suppressed the institute of automatic renewal of concessions (in response of the above mentioned infringement procedure n. 2008/4908 moved by European Commission) through abrogation of comma 2 of article 1 of *d.l. n. 400/1993*. However, facts show a different reality with a constant failure in rule's implementation proven by a sequence of exemptions to the law supported by several governments one after the other and through a series of repeated *ex lege* extensions.

TABLE 6: Order of *ex lege* extensions.

<i>Ex lege</i> Extension	Duration	Expiration Date
<i>d.l. 194/2009</i>	Six years	31/12/2015
<i>d.l. 179/2012</i>	Five years	31/12/2020
<i>Law 145/2018</i>	Thirteen years	31/12/2033

On Table 6, an overview on the mentioned legislative action is given. As a matter of fact, if we look at the last decade and after the entry into force of the *Bolkestein Directive*, deadline of concessions was continuously procrastinated. The duration of licences on maritime public domain in force at 31/12/2009 were extended to 31/12/2015 by *Decree-Law n. 194/2009* converted by *Law n. 25/2010* in attendance

of a reorganization of the normative framework on the release of touristic-recreational type of concessions. Then, the latter was modified by *Decree-Law 179/2012* that extended for other five years the expiration of touristic- recreational concessions to 31/12/2020. Then recently, with the budget law for year 2019 (*Law n. 145 of 2018*) the Italian government made a further extension of the deadline for every kind of concession licence on maritime public domain in force on 1<sup>st</sup> January 2019 and established a duration of thirteen years up to 31<sup>st</sup> December 2033. Doubts was raised about constitutionality of the norm especially for possible violation of EU constraints as stated by art. 117 of Italian Constitution. In this sense, it emerges a situation in which concessions seem to be systematically extended before their expiration and preventing in this way any possibility of a proper procedure of public tendering able to foster competition. De facto a situation of oligopolistic market has been conformed and enforced by a routine mechanism of renewals and, in recent times, of *ex lege* extensions.

## **2.2 Concession Fees and the Pricing Mechanism**

As we mentioned at the beginning of the chapter, pricing mechanism related to beach concessions represent another problematic issue. Although the business related to beach concessions of recreational type seems to be solid, low income is generated by tax collection for national government. The current system provides the right to dispose of a public good for an annual fee giving to the concessionaire

an almost exclusive use on the assigned stretch of beach. On the other hand, we see that such a deprivation of public area represents a massive cost for society that is not counterbalanced by a proper compensation in a socio-economic perspective. In fact, if rights on beach use happens to be allocated inefficiently among few privileged candidates and maybe for disproportioned quantity, in the same way concession tax result to be inadequate generating extremely low income in relation to the scarce nature of this kind of good along with potential turnover of the linked economic sector.

### **2.2.1 How Concession Fees are determined in Italy**

Concession fees for state-owned assets are established through the annual revaluation of price defined by art. 3 comma 1, b letter of *Decree-Law 400/1993* and modified by comma 251 of art. 1 of *law 296/2006* (Table 7). More in details, fees consider both typology of the considered State area and the belonging of the area to two different categories based on its tourist value (respectively typology A - *normale valenza turistica* - and typology B - *alta valenza turistica*). Then, tariffs for squared metre are revalued every year by the average of the ISTAT index of the cost of living and of wholesale market prices. Hence, every amount is adapted to inflation for every year. An exception regards amounts for buildings that stay on the state property: in this case, fees are determined by use of the average unitary value for squared metre of the real-estate market for the related business activity,

determined by OMI (Osservatorio del Mercato Immobiliare), as indicated in art. 1 comma 251 of *law 296/2006*.

According to art. 5 of *regional law 11/02/2010 n. 7*, state-owned assets of touristic and recreational purpose belonging to the Marche Region fall under category B.

TABLE 7: Concession fee for touristic-recreational purpose.

Tipologia	Anno 2020 - importo per metro quadro / anno		Decremento ISTAT rispetto a 2019
	Categoria		
	Categoria "A"	Categoria "B"	
Area scoperta	€ 2,62	€ 1,31	-0,75%
Aree e specchi acquei occupati con impianti/opere di facile rimozione	€ 4,37	€ 2,19	-0,75%
Aree e specchi acquei occupati con impianti/opere di difficile rimozione nonché dalle pertinenze demaniali marittime non destinate ad attività commerciali, terziario-direzionali e di produzione di beni e servizi	€ 5,83	€ 3,74	-0,75%
Per ogni metro quadrato di mare territoriale per specchi acquei delimitati da opere che riguardano i porti così come definite dall'articolo 5 del Regio Decreto 3095/1885 e comunque entro 100 metri dalla costa	€ 1,02		-0,75%
Tra 101 e 300 metri dalla battigia	€ 0,73		-0,75%
Oltre i 300 metri dalla battigia	€ 0,58		-0,75%
Specchi acquei utilizzati per il posizionamento di campi boa per l'ancoraggio delle navi al di fuori degli specchi acquei indicati al punto precedente	€ 0,30		-0,75%
Misura minima del canone totale	€ 361,90		-0,75%

Source: Elaboration of Osservatorio CPI on D.M. 06/12/2019, n.226, and art. 3 of d.l. 400/1993 comma 1, letter b and modified by comma 251 of art. 1 of law 296/2006.

### 2.2.2 An Estimation of State Turnovers

According to data of *Ministero delle Infrastrutture e dei Trasporti*<sup>3</sup>, there are about 52.500 marine state-owned assets in concession, in which 27.300 are of recreational and touristic purpose. Revenues coming from concessions of marine state-owned properties correspond to € 103 million in 2016 as stated by the Ministry<sup>4</sup>. In this respect, as noted by Osservatorio CPI (2020)<sup>5</sup>, data related to the issue are partially provided by public administration and, when it happens, information diffused through different channels frequently results to be in contrast with each other. Data for the following years are not available but it is likely that the volume has remained stable: looking at data before 2016, earnings remained constant around 100 million per annum. 98 million of euros in 2011, 102 in 2012, 102 in 2013, 102 in 2014 and 103 in 2015 were collected by national government. Therefore, as estimated by Osservatorio CPI considering annual revenues of approximately 100 million and dividing them for the number of concessions for touristic and recreational purpose we find out that the annual fees for each concession is on average below 4.000 euros.

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<sup>3</sup> Data accessible at <https://www.mit.gov.it/index.php/comunicazione/news/sistema-informativo-demanio-sid>

<sup>4</sup> Press statement of 3/05/2017 by *Agenzia del Demanio*: <http://www.regioni.it/ambiente-energia/2017/05/03/spiagge-demanio-gettito-103-mlnanno-da-23mila-concessioni-511860/>.

<sup>5</sup> See “Spiagge in Regalo: perché l’attuale sistema di concessioni balneari va riformato?” by Osservatorio sui Conti Pubblici Italiani (OCPI, 2020).

According to estimates made by Adoc<sup>6</sup>, in 2019 the average price for a day spent at the beach is of 26 € per person (27 € in Marche Region), a monthly subscription in August costs on average 697 € (700 €) while a seasonal 1.718 € (1760 €). In the depicted scenario, it is clear how a reorganization of law it is required, both on rules of allocation and concession fee determination for beach concessions. Moreover, it seems to be necessary in the perspective of a rightful enhancement and fair compensation to national state for utilisation and decay of marine state property that represent a social cost sustained by citizens.

### **2.3 A Comparison with Other European States**

If we look to other EU member states, it emerges a situation in which great part of them achieved a more efficient administration of natural resource concessions with greater attention to market competition than in Italy. A study conducted by the Italian Chamber of Deputies (2017) depicted the situation in five European countries: Croatia, France, Portugal, Greece and Spain.

In Greece and Croatia, beach concessions are always assigned by means of call for tender with a minimum duration of 5 years in Croatia (for restoration-type and commercial-recreational businesses) and variable duration in Greece. In Greece,

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<sup>6</sup> Article of 31/05/2019: <https://www.adocnazionale.it/spiagge-spesa-media-giornaliera-complexiva-58-euro-famiglia/#:~:text=Secondo%20un'indagine%20dell'Adoc,costo%20sale%20a%2033%20euro.>

tasks related to beach touristic activities are regulated by *Law n. 2971 of 2001*: they provided selection procedures that guarantee impartiality and transparency, in line with principles enshrined later by the Bolkestein directive. Public tenders happen whenever a concession must be authorized with few exception (for example for hotels that are in front of beaches). From 2011 the construction of permanent buildings within 100 metres from the shoreline is normally forbidden. The Bolkestein Directive has been implemented with *Law 3544 of 2010*. In Croatia conditions and modalities of usage of maritime public domain are regulated by *Maritime Domain and Seaports Act n.11/2002*. In order to obtain concession, several requirements must be satisfied by the applicant including fulfilment of specific objectives, obligations and economic investments. The concession is issued for a period between 5 and 99 years depending on the scope and the necessary investment amounts. Beside the legal institution of concession, the use of maritime domain is permitted also through permissions that allow right of use without limiting general use of the same good. This kind of permission is released for a maximum of 5 years and is issued also for commercial and recreational activities as rental of umbrellas and sunbeds.

Same thing happens in Portugal but with a right of first refusal in favour of incumbent holders of precedent concessions. The regime of marine state-owned assets is regulated by *Law 226-A/2007* that provide the possibility for the holder to express his or her interest in continuing to hold the concession at least one year

before the expiration date: in this case he is given pre-emptive right to fulfil the conditions under which the license has been sold through public tender. Moreover, if the holder has realized additional investments than those originally prospected and demonstrates that they have not been recovered, he can claim to authority partial refund for the money lost or a prorogation of concession for a maximum period of 75 years. Hence, the normative framework of Portugal does not comply totally with the European framework but seem to guarantee a form of open competition through public tender.

In Spain, public tenders are not mandatory but seems to be a standard practice to call for a public tender. Moreover, *Law 2/2013* established that the extension of concessions is subject to an environmental report that shows effects on environment and explains conditions in order to guarantee protection of public domain. Nevertheless, the duration of concession contracts seems to remain high with a maximum limit of 75 years.

In France, concessions are given by means of public tender with open competition and a maximum duration permitted by law of 12 years, without any possibility of derogation or exemption to the general command. The discipline is regulated by *Code général de la propriété des personnes publiques (CGPPP)* and each concession must be assigned with priority to municipalities or group of municipalities and, if they refuse to assert their own right, private organizations can be assigned after a fair competitive procedure. Responsibility for the issuance of

beach concessions with the objectives of development, conservation and exploitation is given to the state and the concessionaire is authorized to use part of the space for installation of bathing facilities. 80% of the considered area must remain free from facilities and every kind of equipment. Along with this, every installation made on the area must be conceived in a way that makes possible its removal at the end of the concession agreement, demonstrating an orientation of the regulatory framework toward environment preservation. Procedures related to the choice of concessionaire provide the obligation to inform communities, municipalities or association of municipalities of the intention to assign or renew a concession or to inform them about demands received for the assignation and they are given two months in order to assert their pre-emptive right. The duration cannot exceed the maximum of 12 years and it is a shorter term than other EU countries and it does not provide any exception or derogation to the general discipline. The tax of concession must be proportioned to advantages achieved through usage of the area of interest and all proceeds are up to the national level of administration, although competence on tax collection is remitted to regional level, in a similar way to Italy. However, one main problem relies on the fact that local departments adopt different tables to quantify the entity of fees resulting in discrepancies on the amount of tax from territory to territory that are difficult to justify.

### **3. ECONOMIC ASSESSMENT OF RECREATIONAL VALUE**

In the empirical part of our analysis, we want to observe the question related to the problem of pricing: from the emerged framework, concession fees and their amounts seem to be almost completely detached from an actual economic valuation of the site given in concession apart from a generic valuation of the tourist value of the site (A and B typology, as established by *Decree Law 400/1993*).

In the context of this research, we propose the possibility to make an economic valuation of the coastal site that can be later compared to the respective turnovers produced by touristic-recreational usage of maritime public domain. Especially this analysis is addressed to value concessions that are specifically aimed to the business of bathing facilities and to give a contribution to a better management of coastal areas. We will focus on a specific portion of the Central Adriatic shoreline of Marche Region that is represented by the coastal area under control of the municipality of Civitanova Marche that stands as one of the stretches of coastline more exposed to exploitation for recreational use since it is one of the main seaside locations of the region.

### **3.1. A Benefit Transfer Approach for the Analysis**

In making an economic assessment for the area, we will make use of a meta-analytical framework for benefit transfer developed by Ghermandi and Nunes (2013) specifically detected to map coastal recreation values on a global level.

With benefit transfer, environmental benefit estimates from earlier and existing empirical studies (i.e., the study sites) are spatially and temporally transferred and their conclusion applied to a new case study (i.e., the beach site) that differs from that of the case study for whom the estimation was originally made. The benefit transfer approach to environmental valuation was developed for situations in which the time and/or money costs of primary data collection for original direct and indirect studies are prohibitive (Desvousges et al., 1998). However, transfer can be extremely difficult when geographic and socio-economic framework significantly differ between study and policy sites. In this way, meta-analysis could represent an alternative way to value assessment that, as stated by Florax et al. (2002), is able to distinguish among phenomenon-intrinsic and context-specific factors, such as methodology applied in the primary valuation study. Meta-analysis generally indicates a method that summarize results from studies previously conducted on a given topic that is mainly applied with use of regression-based technique (Ghermandi et al., 2013). Estimates gathered from primary studies are employed as dependent variables of a linear multi-regression model where characteristics of study sites together with methods used in primary evaluation are classified and

served as independent variables of the considered model. Value transfer applications for out-of-sample research can be carried out to infer the unobserved value in the policy site making use of the meta-regression function with the estimated parameters and the variable levels associated with the policy site.

Starting from the proposed meta-regression model, we aim to define a set of values that will outline the aggregate recreational value of the area expressed as a hectare-based monetary output per year (€/ha/year). Eventually, we will compare the latter to the current average price of concessions paid by beach establishments in Civitanova Marche in order to see how much the value assigned by mean of *d.l. 400/1993* diverges from the value detected through the model.

### **3.1.1 Composition of Primary Evaluation Dataset**

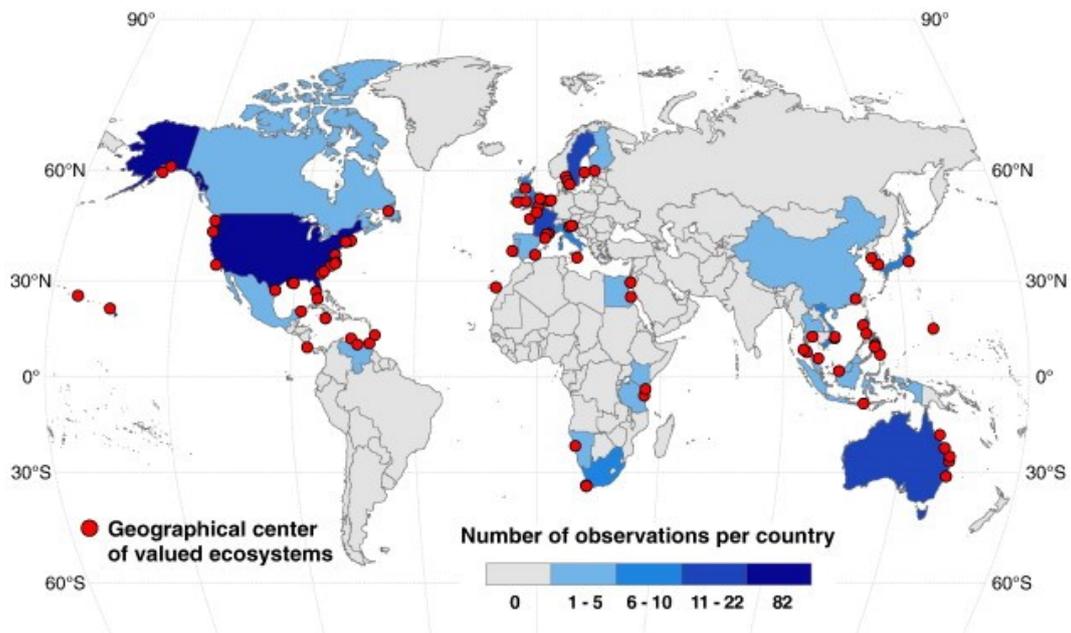
The analysis proposed by Ghermandi and Nunes is based on a global dataset of non-market valuations of the recreational benefit given by coastal and estuary ecosystems with 253 distinct value observed from 79 primary valuation studies. The sample composition of collected observations counts research from the peer-reviewed scientific literature for 60% of the total while the other 40% is represented by unpublished working papers, theses and reports. As reported in the paper, estimates of non-use values (for instance existence, option and bequest values) or mixed use/non-use values were excluded. Two typologies of recreational use were considered and later distinguished into the meta-analytical framework: extractive

usage, represented by fishing, shellfishing and hunting, and non-extractive usage such as swimming, sun-bathing, boating, windsurfing, birdwatching, snorkeling and diving.

Table 8 and Figure 5 are extracted from the paper and provide a summary of characteristics and location for the valued sites. The valued ecosystems contained in the dataset situate in 34 different countries. Most part of the estimations were made in USA and consisted in 82 observations, then Australia with 22, France with 18 and Sweden with 13 observations considered. According to the authors, eighteen countries result to belong to high-income economic cluster, eight to upper-middle-income, five lower-middle-income and three low-income typologies. With regards to climatic conditions, 151 observations of values come from sites located in the North Temperate climate zone (comprised within a latitude that goes from 23.5° N to 66.5° N) standing as the most diffused category among the sample and consistent with our area of interest. Then, a significant number of observed values belong to study sites located in the Tropical Zone (comprised between 23.5° S and 23.5° N, 88 observations) and lastly 14 observations coming from the South Temperate Zone (between 23.5° S and 66.5° S). Looking at the valuation method, all values were obtained through non-market valuation techniques: stated preference methods were employed in the estimation of 111 elements (93 values were observed through contingent valuation and 18 by means of choice experiments methodology) while

the remaining part consist in travel cost (117 observations) and contingent behavior method estimations (25 observations).

FIGURE 5: Geographic distribution of observations.



Source: *Ghermandi and Nunes (2013)*.

TABLE 8: Characteristics of primary studies and sites included in the meta-analysis.

Prevailing ecosystem type	Valuation method	Year of survey	Coastline length, km	Nr. of value estimates
Estuary	Stated preference	2000-2003	12-1540	4
	Travel cost	1995-2003	12-1718	8
	Contingent behavior	1995	1718	1
Beach	Stated preference	1991-2006	3-2268	27
	Travel cost	1992-2003	1-233	22
	Contingent behavior	1986-2003	20-233	12
Coral reef	Stated preference	1996-2007	1-694	33
	Travel cost	1996-2005	15-5618	18
	Contingent behavior	2004-2008	678-5618	2
Marsh/lagoon	Stated preference	1983-2002	2-53	7
	Travel cost	1992-2002	2-53	8
	Contingent behavior	1992	53	1
Mangrove	Stated preference	1997	16	8
	Travel cost	1974	21	3
Other	Stated preference	1994-2007	6-1171	32
	Travel cost	1981-2007	5-8322	58
	Contingent behavior	1995-2007	5-1064	9

Source: *Ghermandi and Nunes (2013)*.

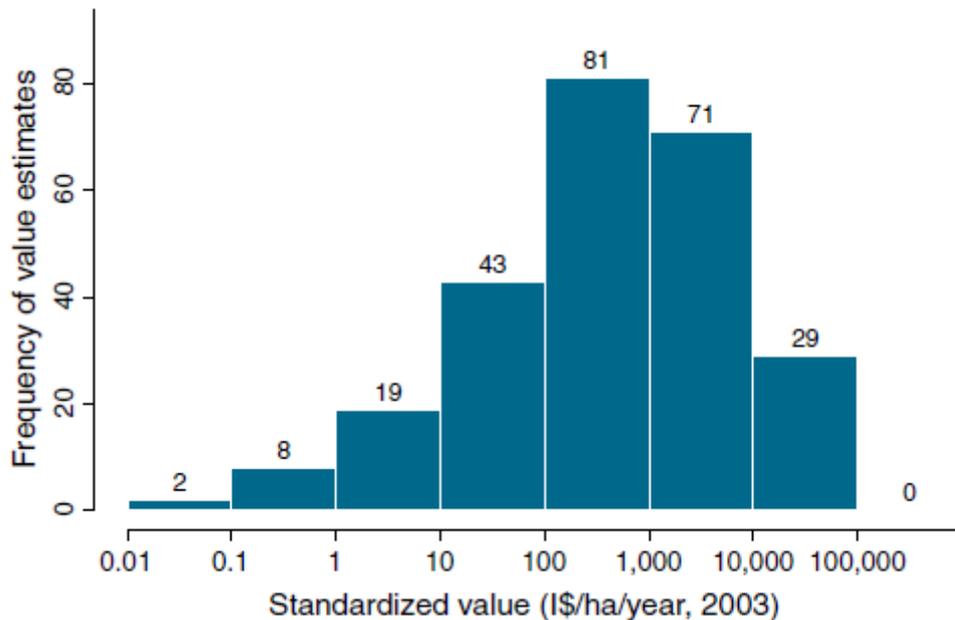
It must be added that most of the studies implied fail to detect the provenience of recreationists: out of the whole sample only 24 valuations exclusively pertain residents while 35 observations were addressed to international tourists. According to the authors, the great part focused on the welfare impact of a change in the current level of provision of ecosystem services that can be represented by an improvement or deterioration in water quality or beach erosion.

In the categorization of ecosystem typologies, it emerges that sandy beaches are among the most valued types with 61 observations, but a significative number of estimations (consisting in 99 observations) relate to ecosystems that are composed by a mixture of different coastal biomes, classified under the voice “Other” (Table

8). As to the size of the valued sites, the model includes studies with a considerable range of variability that goes from the Great Barrier Reef in Australia to areas with 10 km or less of shoreline (33 observations). It emerges also that a relevant part of estimates (consisting of 114 observations) either have the status of protected area or include protected sections.

At this point, data gathered from primary studies were reduced to a common metrics and currency in order to make it comparable: all data are relatable to the common unity of measurement of 2003 international dollars per hectare per year (I\$/ha/year). As a matter of fact, total estimated value of the analyzed ecosystems was computed before multiplying per person or per-household observed values by the flow of annual recreational users as reported in primary evaluations. In the case of per trip estimates given by travel cost studies, they were similarly multiplied by the annual number of trips of recreational purpose. Net present values were converted to yearly amounts through the discount rate and number of periods reported in the original study. On this basis, a hectare-based metric was defined in relation to the geographical extent of each considered area of valuation.

FIGURE 6: Distribution of estimated per-hectare values.



Source: *Ghermandi and Nunes (2013)*.

Values spread out over a wide range with an average value of 4698 I\$/ha/year ( $\pm$  11.283 I\$/ha/year) and a median of 453 I\$/ha/year and in which 60% of estimates (152 observations) lies between 100 and 10.000 I\$/ha/year (Figure 6).

### 3.1.2 The Regression Model

The authors classified a set of moderator variables (Table 9) that were divided into three categories: study variables, site variables and context variables. While the first two describe respectively method-specific and site-specific features, the latter refers

to the socio-economic and demographic context as well as human development and marine biodiversity by mean of spatially explicit indicators.

TABLE 9: Moderator variables of the meta-analytical model.

Group	Variable	Units and measurement	Mean (SD)	N
Study variables ( $X_V$ )				
Valuation method	Choice experiment	Binary	0.07 (0.26)	18
	CVM – open ended	Binary	0.12 (0.32)	30
	CVM – other elicitation	Binary (omitted)	0.25 (0.43)	63
	TCM – individual and RUM	Binary	0.35 (0.48)	89
	TCM – zonal	Binary	0.11 (0.31)	28
	Contingent behavior	Binary	0.10 (0.30)	25
Marginal/total value	WTP to avoid degradation	Binary	0.15 (0.36)	38
	WTP for improvement	Binary	0.32 (0.47)	82
	Total value at current status	Binary (omitted)	0.53 (0.50)	133
Unpublished		Binary	0.63 (0.48)	159
Year of primary data		Years after first valuation (1974)	23.9 (6.52)	253
Site variables ( $X_S$ )				
(Partially) protected area <sup>a</sup>		Binary	0.45 (0.50)	114
Ecosystem type	Beach	Binary	0.24 (0.43)	61
	Reef	Binary	0.21 (0.41)	53
	Mangrove	Binary	0.04 (0.20)	11
	Lagoon or coastal marsh	Binary	0.06 (0.24)	16
	Estuary	Binary	0.05 (0.22)	13
	Other coastal ecosystem	Binary (omitted)	0.39 (0.49)	99
	Recreational fishing	Binary	0.40 (0.49)	101
Ecosystem service	Non-extractive recreation	Binary	0.78 (0.42)	197
Context variables ( $X_C$ )				
GDP per capita <sup>b</sup>		2003 US\$/year (PPP, ln)	10.0 (0.81)	253
Population density <sup>c,d</sup>		Inhabitants per km <sup>2</sup> (ln)	4.77 (1.75)	253
Anthropogenic pressure <sup>c,e</sup>		Nutrients concentration (ton/km <sup>2</sup> /year, ln)	0.41 (2.85)	253
Marine biodiversity <sup>c,f</sup>		Shannon index of biodiversity	3.84 (1.64)	253
Accessibility <sup>g</sup>		Travel time to nearest large city (hours, ln)	4.53 (1.04)	253
Human development	Low development <sup>c,h</sup>	Binary	0.57 (0.50)	143
	Medium development <sup>c,h</sup>	Binary	0.09 (0.29)	23
	High development <sup>c,h</sup>	Binary (omitted)	0.34 (0.48)	87
Political stability <sup>i</sup>		Political stability index	2.92 (0.63)	253
Heating degree months <sup>j</sup>		Degrees Celsius	49.4 (40.3)	253
Max monthly precipitation <sup>k</sup>		mm of precipitation	1270 (634)	253

Source: Ghermandi and Nunes (2013).

The meta-regression model was estimated as follow:

$$(1) \ln(y_i) = \alpha + Xv_i bv + Xs_i bs + Xc_i bc + u_i$$

Where  $\ln(y_i)$  is a  $N \times 1$  vector expressed as the natural logarithm of the endogenous variable measured in 2003 I\$/ha/year;  $i$  is an index for the value observation;  $\alpha$  is a constant term;  $b_v$ ,  $b_s$  and  $b_c$  are  $k \times 1$  vectors including the coefficients of the related explanatory variables (with  $N$  = number of observations and  $k$  = number of regressors). The explanatory variables  $Xv_i$  (valuation study characteristics),  $Xs_i$  (site characteristics) and  $Xc_i$  (context characteristics) are  $N \times k$  matrixes and  $u_i$  is an error term. The model is semi-logarithmic apart from several context variables that are included in the logarithmic form.

The authors provided four different specifications of the model for benefit transfer: in our analysis, we choose to use the same transfer function used by the authors to make the global mapping of coastal recreational values since it represents the model “with the best overall explanatory power and highest consistency with the theoretical and empirical expectations” as stated in the paper. In this model all variables were tested and then regression coefficients were recalculated embedding only statistically significant variables. The employed model results to be composed as described in Table 10.

TABLE 10: Restricted model for value transfer.

Variable	Coefficient	95% confidence interval		p-Value
Constant	-7.987	-14.510	-1.465	0.017
CV – open ended	-0.944	-1.713	-0.174	0.016
TCM – zonal	1.862	1.089	2.635	0.000
TCM – individual and RUM	0.937	0.377	1.497	0.001
Contingent behavior	-1.639	-2.432	-0.847	0.000
WTP for improvement	0.863	0.326	1.400	0.002
Unpublished	-1.312	-1.870	-0.754	0.000
Year of primary data	0.144	0.106	0.182	0.000
Estuary	1.050	-0.228	2.328	0.107
Beach	1.860	1.087	2.632	0.000
Reef	1.667	0.826	2.507	0.000
Recreational fishing	1.697	0.956	2.439	0.000
Non-extractive recreation	3.387	2.585	4.188	0.000
GDP per capita (ln)	0.470	0.051	0.889	0.028
Population density (ln)	0.454	0.156	0.751	0.003
Low human development	1.972	1.367	2.577	0.000
Anthropogenic pressure (ln)	-0.239	-0.327	-0.150	0.000
Accessibility (ln)	-0.534	-0.984	-0.085	0.020
Marine biodiversity	0.290	0.144	0.437	0.000
Heating degree months	-0.008	-0.016	0.001	0.092

Note: regression with robust standard errors; N = 253; R-square = 0.719; adj. R-square = 0.696; Root MSE = 1.583; Shapiro-Wilk test, p-level = 0.193.

Source: Ghermandi et al. (2013).

All observations were considered, and the regression was performed with robust standard errors. A total of 19 explanatory variables were detected with statistical significance: respectively 7 from the group of study variables, 5 from site variables and 7 from context variables. The explanatory power of the model seems to be relatively high for a meta-analysis with a broad scope like the present, as the adjusted R-square is equal to 0.696.

### **3.2. Application of the Analytical Framework to the Policy Site of Civitanova Marche**

As we said in Chapter 1, the mid-Adriatic and more in general the Marche shoreline result to be an area of great touristic interest. In this framework, several coastal conglomerates have been formed and benefited of long linear beaches able to welcome a huge basin of recreationists every year. In our research, we decide to focus on the situation related to the municipality of Civitanova Marche and the stretch of coastal line under its administration that represents one of the greatest and most relevant in term of user base of the entire regional area.

Civitanova Marche, situated in the south-central part of the region under the territory of Macerata province, is composed of a beach area of around 50 hectares (Figure 7) with a sea front of approximately 6.500 m that stretch continuously, only interrupted by 590 m of port area that divide the larger North promenade from the South promenade. On the total coastline, about 2.500 m results to be occupied by 45 beach concessions for seaside facilities<sup>7</sup> that cover an area estimated in 16 hectares by local administration. Then, 950 m are intended for public use, 815 m are covered by a protected area of floristic interest situated in the northern portion of coastline close to the border with the municipality of Potenza Picena and a little more of 2 km not accessible for swimming since they fall under fluvial and harbor

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<sup>7</sup> Data available online at *Portale del Mare* by Ministero delle Infrastrutture e dei Trasporti. See: <https://www.mit.gov.it/index.php/comunicazione/news/sistema-informativo-demanio-sid>

area. Like described by Acciarri et al. (2016), the shoreline is composed by sediments mainly fine to the north of the port (fine sands of 0.125 – 0.25 mm), whereas to the south coarser sediments are present (gravel of 4 – 8 mm). The southern promenade results to be devoid of coastal defense infrastructures, while the northern one is protected by a series of cliffs of different height.

FIGURE 7: The coastline of Civitanova Marche.



*Source: Google Image.*

### **3.2.1 Defining Explanatory Variables through Sensitivity Analysis**

In defining the explanatory variables, we want to provide a value range that could be consistent with the policy site as we think that a reliable evaluation can be assessed only in the definition of an interval of values instead of a single point estimate. This is true for two main reasons: first, we have seen how the

characteristics of the policy site are probably only partially relatable to the dataset of primary studies; second, some of the variables are difficult to determine for a site like the one in analysis and require technical knowledge in some other scientific fields to be computed that we do not possess. We will lean on information provided by previous studies where it is possible, while, whenever it will not be, we would try to define an estimation based on empirical knowledge of the site.

Hence, the methodology we will employ is referable to the one of sensitivity analysis. Pichery (2014) refers to Sensitivity Analysis (SA) as “a method that measures how the impact of uncertainties of one or more input variables can lead to uncertainties on the output variables”. SA can improve the power of prediction of the model itself since “the expected values of various parameters involved can be used to evaluate the robustness, i.e., sensitivity of the results from these changes” adding that “this analysis reduces the uncertainties of parameters of the assessment and then, decisions about the phenomenon under study can be taken”.

We will define each explanatory variable carefully taking into consideration the three categories detected by the authors in the original study related to methodology used (i.e., *study variables*), site specific features (i.e., *site variables*) and context specific variables (i.e., *context variables*).

### 3.2.1.1 Identification of Study Variables

From the chosen model for value transfer (Table 10), it results that seven variables of the category have statistical significance: respectively *CV – open ended*, *TCM – zonal*, *TCM individual and RUM*, *Contingent behavior*, then *Wtp for improvement* along with *Unpublished* and *Year of primary data*. The first four are dummies related to the valuation method while *Wtp for improvement* is a binary variable for estimations that refers to a change in the level of provision of public good. Then, the last two variables are selected respectively to see whether the estimated value comes from a scientific peer-reviewed paper or not whereas the last one stands for the differential in number of years between the considered estimation and the year of the older study proposed in the model (1974). Table 11 provides an overview on the chosen value for meta-analysis.

In considering the effect on the output of the given variable group, we should take into account how recreation value may vary depending on the employed analytical technique (Bateman and Jones, 2003). If contingent valuations of open-ended valuation format seem to be more exposed to free riding, travel costs methods represent a more appropriate way in valuing outdoor recreational values as widely recognized by the literature. In general, a positive impact of TCM methodologies would be expected by authors as stressed by plenty of empirical studies that attribute to TCM a higher entity to the valued site (Bateman and Jones, 2003). Therefore, our choice among the method variable would fall in selecting the lower

and higher estimated coefficients represented by *Contingent behavior* and *TCM – zonal* but we can reasonably assume a value closer to TCM methodology to be in line with the purpose of our valuation for the policy site. Besides this, we assign value (1) to *Wtp for improvement* while we give no value (0) to the moderator *Unpublished* as we do not consider relevant the publication bias for our context of analysis. Lastly, the variable *Year of primary data* (YPD) could lead to equivocal results in the value assessment as it makes the dependent variable to increase dramatically. It is difficult to address such a huge distortion just to a shift in consumers' preferences or refinement of valuation techniques as referred by the authors, also given the fact that a possible income effect should have been captured by the moderator *GDP per capita*, already present in the model. In this perspective, even if an effect could be played by the above, it seems more probable that such value explosion is due to an ageing of the meta-analytical framework that make the variable to lose sensibility with passing of years. The considered regressor emerges as a positive trend with large intensity possibly related to a specific feature of the sample dataset considered by the authors. As regards our analysis, we take 2019 as reference year in order to estimate a pre-pandemic scenario and we assign a value (YPD = 45) that it is almost double to the mean of the primary data sample. In this sense, we will set up an alternative trial also using the mean value (YPD = 23.9) in order to evaluate the effect of the variable on the final output.

### 3.2.1.2 Identification of *Site Variables*

Site variables are specified through a set of characteristics regarding the protected status of the area, ecosystem type and then by services provided by the investigated site in term of recreational fishing and non-extractive recreation (i.e., all recreational activities that do not undermine in a substantial manner the stock composition of public good). The processed model realized statistical significancy respectively to three ecosystem type (estuary, beach and reef-composed ecosystems) and to both the service-related independent variables. All the five items impact positively on the dependent variable.

Within the given framework, the policy site of Civitanova Marche is easily attributable to a beach ecosystem. In this respect, we must keep in mind that the proposed category (that includes only study sites with sand sediments) fits partly our case considering the shingled composition of part of the promenade. Nonetheless, the latter constitutes a minority of the whole coastal area and so we can assume the suitability and select the ***Beach ecosystem type*** variable. Coming to the identification of ecosystem services, we know from the authors that the two regressors of ***Non-extractive recreation*** and ***Recreational fishing*** are not mutually exclusive. The policy site results to be equipped with both services: in fact, if swimming and sunbathing are the most diffused reasons of user visits, the possibility to make pleasure boat activity is also included, even considering the presence of yachting clubs and a port that allow boat docking. In a similar way,

sport and amateur fishing is permitted along the entirety of the shoreline. Therefore, we attach value 1 to both variables. Looking at the primary dataset, we see that fishing was provided only in 40% of the estimations probably since that protected areas are involved in almost the half (45%) of value observed in primary studies.

### **3.2.1.3 Identification of Context Variables**

Variables that fall under the following category are referred to the specific context in which the site under investigation is located, considering several socio-economic, climatic and ecosystem-related factors. Nine variables are classified by authors of which six are significant for the considered model plus the moderator *human development*, composed of three binary sub-variables, that is only significant for the *low human development* binary option.

The *GDP per capita* moderator variable is expressed as the natural log of the national income level for the considered year in 2003 International Dollars and have a positive impact on the dependent variable. As already mentioned, we choose 2019 as reference year for our evaluation in order to exclude from the regressor any effect of the recent economic shock of Covid-19 pandemic. Hence, the figure about Italy gross domestic product per capita for year 2019 was extracted from World Bank series at current international dollars and it amounted to 44.248,2 \$. Then, the latter was converted into 2003 International Dollars by mean of the Consumer Price Index

(CPI) in order to make it comparable with primary data from the meta-analysis. We define it as follow:

$$(2) \text{GDP}_{2003} = \text{GDP}_{2019} / \text{CPI}_{2020} * \text{CPI}_{2003}$$

GDP<sub>2003</sub> results to be 31.449,8 \$. Annual consumer price indexes were calculated by picking values of monthly CPI for the corresponding base years and taking the average. Consistently with the regression framework, the independent variable, as expressed by its logarithmic function (Table 11), turns out to fall within the value range of primary observations.

The explanatory variable *Population density* has also a positive effect on the dependent variable and is described as the natural log function of the number of inhabitants per km<sup>2</sup>. We can easily define the regressor as the ratio between the current number of citizens and the whole surface occupied by the township. According to official data, the town counts 42.167 dwellers whereas it covers an area of 46,06 km<sup>2</sup>: it follows a population density of 915 inhabitants/km<sup>2</sup>. If compared with data from the dataset of primary evaluations, we clearly see a divergence from the mean value of approximately 115 inhabitants/km<sup>2</sup> (4,77 in term of log function) also distant from the upper bound of the distribution. Once again, it reaffirms the feature of higher urbanization for the policy area in respect with the dataset composition. In this sense, we can soundly attribute zero value to the explanatory variable *Low human development*.

We compute the value of the *Accessibility* regressor following the authors' instructions that describe the variable as the travel time from the nearest city with more than 50.000 inhabitants. Hence, the mean travel time from the policy site to the city of Ancona was considered and evaluated to be forty minutes on average (considering train and car as transport options and excluding coach). The obtained value, as expressed by its log function in Table 11, represent an outlier in the given distribution that, in the context of value transfer, causes the regressor to reverse its impact with a positive effect on the dependent variable. Therefore, we should read this data considering the role that a greater accessibility could play in ensuring a wider number of recreational users, consequently increasing the aggregate value of the area.

*Heating degree months* variable is employed to describe the aspect of climate in the economic valuation. The coefficient shows a slight negative impact while the metrics (HDM) stands for the cumulative deviation of average monthly temperature from an optimal base mean temperature that the authors, following Maddison and Rehdanz (2011), define as below:

$$(3) \text{ HDM} = \text{POS} (18.3 - T_{\text{JAN}}) + \text{POS} (18.3 - T_{\text{FEB}}) + \dots + \text{POS} (18.3 - T_{\text{DEC}})$$

Where  $T_i$  represents the mean temperature for each considered month and the function POS returns only positive deviations. A base temperature of 18.3°C is defined as the optimal temperature where householders need neither heating nor

cooling to feel comfortable indoors (Maddison and Rehdanz, 2011). Since we are not able to find trustable data specifically addressed to the site of Civitanova Marche, we define the value making use of data related to the meteorological station of Ancona - Falconara<sup>8</sup>. According to the formula, we obtain an estimated value for Heating Degree Month of 67.4 °C that is slightly higher than the mean value of the sample indicating a colder area in respect to the study sites.

Eventually, a separate comment must be made for the last two variables of *Marine Biodiversity* and *Anthropogenic Pressure* where detailed metrics for the policy area were scarce. In order to assess *Marine Biodiversity*, the authors made use of the Shannon-Wiener index of biodiversity as calculated within the global mapping framework of Ocean Biogeographic Information System (OBIS). As defined by OBIS, the Shannon-Wiener (S) is an entropy index, whose usage is widespread in biology, that quantifies the degree of uncertainty in predicting the species identity of an individual that is taken randomly from a given sample. Due to difficulty in extrapolating significative information for an extremely limited geographic area from OBIS dataset, we will make use of other sources from the literature to detect a measure of marine biodiversity for the area of investigation. In general, we see how marine biologists agree on the fact that a huge depletion of biocenosis of

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<sup>8</sup> Data extracted on the basis of medium temperatures of last 30 years as reported by the meteorological station of Ancona – Falconara.  
See: <https://www.ilmeteo.it/portale/medie-climatiche/Civitanova+Marche>

central Adriatic ecosystems is going on especially because of fishing practices (such as bottom trawling) that are widely spread also in the site of Civitanova Marche. Bastari et al. (2017), through an analysis of local ecological knowledge based on response of a sample of surveyed fishermen, supports that “intense trawling in the Adriatic Sea over the past decades may have been a major factor determining the alteration” and particularly that “at increasing distance from the coast, higher classes of abundance are more likely”. Hence, we assume a lower biodiversity for the recreational site that is close to the shore and characterized by shallow backdrops. Moreover, several attempts of quantitative measuring for marine biodiversity of the Central Adriatic sector are traceable in the literature. We cite two studies for our analysis respectively conducted by Coccioni and Frontalini (2007) and Lattanzi et al. (2012) that are useful to get a sense of the marine biodiversity degree. Coccioni and Frontalini provided a follow-up activity on Benthic Foraminifera that was based on data gathered by 42 sampling stations distributed along the stretch that goes from Gabicce to Porto Recanati during a time span of three years (2002-2005). The Shannon-Wiener index was estimated to move into a range that vary from 0.4 to 2.1. In a similar way, Lattanzi et al. made an analysis of Amphipod assemblage’s presence in the context of an operation of beach nourishment and estimated the Shannon-Wiever index specifically for the coastal zone under the municipality of Civitanova Marche. Value observed in proximity of the coastline for shallow backdrops (2 meters) ranged from a mean

value of 1.36 before nourishment and 1.99 after nourishment while deep backdrops (5 meters) values are respectively 2.05 before and 1.90 after nourishment. Although information is not exhaustive for a full assessment and consider only a restricted sample of species, it gives as enough confidence to affirm that the policy site possesses a lower level of marine biodiversity compared to the dataset distribution. We envisage a Shannon-Wiener index that is most likely to be less than or equal to 2. Therefore, we will consider two hypothetical values for the corresponding regressor: the first value will be that of a Shannon-Wiener index equal to 2 ( $S = 2$ ) and the second one equal to 1.38 ( $S = 1.38$ ) that corresponds to the mean of primary observations' distribution minus one and half times the standard deviation.

In a similar way, we want to estimate the *Anthropogenic Pressure* (AP) variable that is defined by the authors as the nutrient concentration (ton/km<sup>2</sup>/year) in the surrounds of the investigated site, that negatively impact on the dependent variable. Even if we are not able to determine the requested metrics, we can clearly define the shoreline of Civitanova Marche as a densely anthropized area that is subject to the effect of several environmental stressors that go from the above-mentioned fishing and fish farming practices to sea trade and port activities, besides recreational exploitation. Thus, we tend towards the attribution of a high value for the corresponding moderator variable of the meta-analysis also considering the composition of primary valuation's dataset. For the purpose of value assessment, we assume a first value equal to the upper bound of the sampling distribution of

primary data ( $\ln(AP) = 3.26$ ) and a second value corresponding to the mean plus twice the standard deviation ( $\ln(AP) = 6.11$ ) as we retain high chances to find our site lying between these two ends, also given the logarithmic nature of the regressor.

TABLE 11: Value selected for explanatory variables.

<b>Explanatory Variable</b>	<b>Units</b>	<b>1st Selected Value</b>	<b>2nd Selected Value</b>
<b>Study Variable</b>			
<i>CV - open ended</i>	Binary	0	-
<i>TCM – zonal</i>	Binary	1	0
<i>TCM – individual and RUM</i>	Binary	0	-
<i>Contingent Behavior</i>	Binary	0	1
<i>WTP for improvement</i>	Binary	1	-
<i>Unpublished</i>	Binary	0	-
<i>Year of primary data</i>	Years after first evaluation (1974)	45	23.9
<b>Site Variable</b>			
<i>Estuary</i>	Binary	0	-
<i>Beach</i>	Binary	1	-
<i>Reef</i>	Binary	0	-
<i>Recreational fishing</i>	Binary	1	-
<i>Non – extractive recreation</i>	Binary	1	-
<b>Context Variable</b>			
<i>GDP per capita (ln)</i>	2003 US\$/year (PPP, ln)	10.35615	-
<i>Population density (ln)</i>	Inhabitants per km2	6.818924	-
<i>Low human development</i>	Binary	0	-
<i>Anthropogenic pressure (ln)</i>	Nutrients concentration (ton/km2/year, ln)	3.26	6.11
<i>Accessibility (ln)</i>	Travel time to nearest large city (hours, ln)	-0.40547	-
<i>Marine biodiversity</i>	Shannon index of biodiversity	2	1.38
<i>Heating degree months</i>	Degrees Celsius	67.4	-

### 3.2.2 Results of the Analysis

In the making of the analysis, we make use of two different settings of variables: a first setting composed by 8 different combinations of explanatory variables (*Setting A*) and a second one in which we value the impact of the variable *Year of Primary Data* that consists of 16 combinations (*Setting B*). In this way, we obtain two separate layouts of the model that are shown in the Appendix. In Setting A, a twofold impact is analyzed for three explanatory variables (*TCM-zonal/Contingent Behavior, Anthropogenic pressure and Marine biodiversity*) with the envisaged value running between the two extremes identified. The same happen for Setting B with the addition of the variable *Year of primary data*. Therefore, while Setting A is configured in compliance with the guidelines given by the authors for value transfer approach, the latter gives us a broader perspective useful to evaluate the above specified effect of the considered study variable *Year of primary data* by picking the mean value assumed in primary observations' dataset.

TABLE 12: Value ranges for the policy site of Civitanova Marche.

SETTING	LOWER BOUNDARY VALUE (€/ha/year)	REFERENCE VALUE (€/ha/year)	UPPER BOUNDARY VALUE (€/ha/year)
SETTING A	71.938	4.712.400	5.640.638
SETTING B	3.447	225.778	5.640.638

By running the model, each corresponding output is detected and exchanged into current euros. Value ranges for the two analyzed scenarios are summarized in Table 12 together with the corresponding reference value for each setting. In Setting A, the emerged monetary value for the considered policy site ranges between 71.938 and 5.640.638 €/ha/year: we expect the economic value of the policy site to amount presumably to 4.712.400 €/ha/year that is the output defined by the combination of variables that estimated the results of a zonal travel cost method analysis ( $TCM - zonal = 1$ ;  $Contingent\ behavior = 0$ ) by picking the more conservative estimation for Shannon Index ( $S = 1.38$ ) and the value equal to the upper bound of the sampling distribution of primary dataset for the logarithmic explanatory of anthropogenic pressure ( $\ln(AP) = 3.26$ ).

On the other hand, Setting B defines an interval of values between 3.447 and 5.640.638 €/ha/year where we assume a reference value for the estimation of 225.778 €/ha/year: the latter describes the output performed by defining the first three variables in the same manner as the reference value of Setting A ( $TCM - zonal = 1$ ,  $Contingent\ behavior = 0$ ;  $S = 1.38$ ;  $\ln(AP) = 3.26$ ) plus the additional variable of *Year of primary data* defined by taking the mean value of the meta-analysis' sample ( $YPD = 23.9$ ).

The comparison within the two layouts suggests a huge impact of the variable *Year of primary data* on the dependent variable that moves down the lower bound of the estimate. Moreover, this impact is further emphasized by the huge gap that

intervenes among the two reference values of Setting A and Setting B. It seems difficult to interpret it if not as a side effect of some model's obsolescence. In this sense, an update of the model seems to be necessary for further value transfers and it will be useful in the perspective of a model use for policy assessment, given the wide impact exerted by the regressor on the dependent variable that could lead to conflicting results.

However, we retain Setting A to reflect a more rigorous use of the meta-analytical framework and we stick to the results obtained by the latter for a benefit transfer approach. Nonetheless, a value range that is slightly lower than what emerged from the calculation may be conceivable.

Coming to our area of interest and according to data provided by the municipality office on maritime domain services of Civitanova Marche, a total of 475.000 € in fees were collected for year 2020 on concessions of marine state-owned assets of which 287.000 € specifically incurred for seaside establishments, a figure that we can assume to be relatively stable over time. Moreover, this amount results to be directly referable to an overall area devoted to beach clubs of around 16 hectares implying an average cost per hectare of a little less than 18.000 €/ha/year for the concessionaire. If we compare the average cost of concession fee with results of Setting A, the detected recreational value for the corresponding hectares seems to be extensively higher than the total of proceeds. Besides, it is remarkable that, even

only considering the lower boundary of Setting A's estimate, it emerges a value that is four times bigger than the average amount determined by concession fees.

We note especially how the high number of recreational services provided represents a significant source of value for users of the area of Civitanova Marche. This situation results to be also enhanced by the high accessibility to the site as well as by the large population density that guarantee a solid basin of beach users especially during the warmer seasons. In this sense, similar analyses could be carried out for coastal areas such as San Benedetto and Porto Recanati that show a compatible beach configurations and preferences of consumption among users and may lead to similar results.

Of course, it must be mentioned that possible limitations could affect the application of the given framework of meta-analysis to policy sites like the one we tried to analyze. Features of primary valuation dataset such as the high frequency of protected areas and the better quality of marine habitats can discourage from considering it as a valid estimate for the policy site. Nonetheless, if we consider the scenario provided by the model, the obtained results strengthen the hypothesis of a poor compensation for the leasing of rights of disposal over public beach: as a matter of fact, the model describes an order of magnitude for recreational value that is way bigger than the one determined for concession fees by the legal framework of *d.l. 400/1993*.

## **4. CRITICAL FACTORS AND POSSIBLE SOLUTIONS FOR BEACH CONCESSIONS**

From the described scenario, it emerges a complex regulation system for beach concessions with a stratification of the normative that happened over many years. Consequently, it became the cause of conflict between different stakeholders and of episodes of bad management and inefficiencies for this peculiar subject. Within the given context, the situation related to touristic and recreational concessions and seaside establishments is certainly an anomaly generated by this framework and that requires to be extensively revised. According to our analysis, several key factors can be identified and deserve to be examined in order to implement attentive policies for coastal environment.

### **4.1 Pricing Problem and Number of Concessions**

As we know, the current system of assignation is not based on a public negotiation between concessionaire and the state-owner and an efficient allocation of beach among private and public use is not always guaranteed. In specific, effectiveness of the evaluation criteria determined by *d.l. 400/1993* is questioned as it contributes to the formation of a price that is virtually much below the market. On the other hand, quantity given for concessions of coastal areas is extremely high and endorsed by national and regional legislation, setting limitations that are soft or non-existent and,

in some cases, do not impose sanctions to violators as we have already seen. In this way, the legal framework enhances a situation that tends toward preferences of private disposal with practically no consideration to consumption preferences of neighboring community and users. Equally, the outcomes of the proposed analysis and benefit transfer approach on the policy site of Civitanova Marche seem to confirm this view with a per-hectare value significantly higher than the corresponding concession tax and an area covered by beach establishments equal to almost one third of the total shoreline surface.

However, as regards the adequacy of fees paid, it can be argued that concessionaires play a role in the enhancement of the stock of public good and in this way contribute to the value implementation of the marine state-owned property. In this way, divergence between paid price and the actual economic value could be justified. Nonetheless, this hypothesis does not seem to reflect completely the reality. In its report on Italian beach (2012), WWF affirms how bathing facilities contributes to a process of overbuilding on coastal areas that involved especially hard, non-removable facilities. Contemporaneously, a constant depletion of the dune environment is witnessed along national coastline, that passed from 1.200 km in 1955 to 700 km in 2012, with serious implication on coastal erosion and significant loss in term of marine biodiversity. Against this background, it is difficult to outline in general term a clear role played by concessionaires in landscape and environment preservation or enhancement.

Therefore, the need for an adjustment over price mechanism seem to be unquestionable. Two viable options are possible: on the one hand, an increase of the concession fee (possibly through systems that include public tendering procedures) and on the other hand to constrain the concession issuance to more stringent obligations in accordance with principles of a better preservation of coastal environment. In both cases, parameters set out by regulatory framework and *d.l. 400/1993* must be overcome and at least an update of taxation seems necessary. This could happen by a redefinition of parameters set out by the Decree Law but also by exploring new solutions, such as the addition of a “tax on revenues” performed by seaside facilities or by attaching the configuration of price to brand-new procedures of economic value assessment aimed to take consumer preferences into consideration of cost-benefit analysis and help municipalities to take decisions on the awarding of additional concessions.

On the other side, an ever-increasing tendency toward private forms of management has been witnessed in recent years, with the number of beach establishments quantified in 12.000 over the entire Italian peninsula and occupying almost a quarter of the national coastline suitable for swimming. Especially it emerges how the total number of seaside establishments has passed from 5.300 in 2001 to 12.000 in 2012 showing how the leisure and touristic sector attracted an ever-increasing number of

firms with around 30.000 national enterprises in the field<sup>9</sup>. In this respect, as stated by Benetazzo et al. in their report over the Italian beach concessions for the Directorate General for Internal Policies of the Secretariat of European Parliament (2017), the choice among alternative frameworks to the existing one must therefore take account of an insurmountable constraint linked to the scarcity of the environmental resource necessary to operate in the sector. This was the condition that has led the legal system to the allocation of public domain's property to the national State and consequently regional and territorial authorities with the possibility to lease property rights through the institute of administrative concession. Hence, it seems possible to build a comprehensive reform of the sector that envisages differentiated solutions according to the nature of state property, and which also considers the date of award of concessions as well as the needs of public interest during tendering procedures. In this context, the tendency toward the adoption of outsource solutions is not necessarily detrimental but must be pursued with attention to the long-term scenario bearing in mind the shortage of public beach and the irreversibility of several processes of environmental transformation. To implement a similar approach, mechanisms of pricing that take into consideration the scarcity of good and envisages progressive fee to apply for each incremental stretch of coastline outsourced would represent a possible solution of

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<sup>9</sup> See the WWF report "Spigge Italiane: bene pubblico, affare privato" at pag. 10

support to the already adopted regional and municipal planning for Integrated Coastal Zone Management.

#### **4.2 The Need for a Reform of the Allocation Procedure**

On a more general note, a reorganization of the system of allocation of concessions seems fundamental, given the progressive shift of the concession institute from a tool aimed to enhance the mere preservation of coastline to a source of financial profit for entrepreneurs. A reform seems necessary also in the light of EU law that imposes through the principles of free exchange and movement of capital an efficient use of Member States-owned resources, that have the duty to contribute to the economic development of the European Union. In this respect, EU institutions represent the main responsible for the gradual evolution of national law into the direction of competitive market for operators of the touristic and recreational seaside sector for the purpose of a right allocation of maritime public domain. Moreover, as we have seen, the public decision to allocate stretches of coastal line to a specific use through concession rather than general use forms a potential disadvantage for citizens due to the potential reduction of available options of public beach's usage. In this sense, Benetazzo et al. suggest two criteria that must be guaranteed. Firstly, a general principle of protection from which should derive specific conservation objectives of the initial state of the asset and its restoration at the end of the period of entrepreneurial exploitation together with fundamental

obligations to safeguard citizens' enjoyment of the area. With this regard, a good example is represented by Spain law that provides that installations made on beach concessions for private use must guarantee free access to the public except for circumstances in which the competent administrative authority decides to act differently for reasons of public interest. Secondly, the issuance of concessions on state-owned property must be preceded by a clear identification of their intended use. As noted, this put a huge discretionary power in the hand of the competent bodies that must evaluate the intended use that maximizes interests of citizens and their right of use, before choosing the most suitable way to select concessionaires. Besides the above, another problem arises with link to the maximum duration of concessions granted that must be inevitably reduced to boost a system prone to competitive development. The latter consequently calls also for consideration on investment made by operators and their need for an adequate time to absorb it. This is especially crucial also considering that typically longer duration of concessions comprised among 20 and 25 years correspond to large beach establishments with full services with hardly removable facilities<sup>10</sup>.

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<sup>10</sup> See the WWF report "Spigge Italiane: bene pubblico, affare privato" at pag. 12

#### **4.2.1 Public Tender Procedure: Some Positive Examples**

As broadly supported, to set up new entrepreneurial activities in available areas, the general provision of public tender seems to be the only regulation option coherent with the principle of competition and modelled to provide incentives for the correct use of public beach. Proposals aimed to the development and protection of the given area should be enhanced through the adoption of specific selection criteria, with subsequent surveillance and the application of sanctions whenever there is not compliance with the rule. As suggested by the national authority on corruption AGCM<sup>11</sup>, the competent authority could lead the way in tendering procedures through specific requirements in term of the investment type and size needed by the new concessionaire. Positive examples that go toward this direction are given by regional regulations adopted by Friuli-Venezia-Giulia, Emilia-Romagna, Campania and Veneto regions. Particularly, Friuli-Venezia-Giulia requires an accurate documentation from candidates in the tender procedure, with a detailed analysis to be presented: for concessions of touristic and recreational purpose that exceed the duration of six years, it establishes a technical report of interventions to be performed, a time schedule of all planned interventions, broken down into operational phases, an economic and financial plan that justify the duration of the license. In addition, the latter regional framework is extremely careful to the issue

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<sup>11</sup> See report AS481 of 20 October 2008 by AGCM

of environmental protection providing that administrative functions must be exercised “in compliance with the principle of environmental sustainability, in the context of support, social and economic development and planning and programming”<sup>12</sup>. In a similar way, Emilia-Romagna gives priority to proposals of greatest environmental interest through the adoption of specific criteria. Veneto and Campania provide an ad hoc procedure for issuance based on entity, duration and purpose of the concession. Campanian regulation especially focus on projects that use materials and eco-friendly technologies to design and set up seaside facilities. On the other hand, a different selection procedure should be envisaged in the situation of a new allocation for stretches of shoreline that are already subject to previous concessions, as also supported by Benetazzo et al. that underline how this situation occurs more frequently along the coastlines of Italy, due to its higher density of beach establishments compared with countries such as Croatia and France. In this sense, it is obvious that the seaside business represents a strategic sector for the Italian economy and a great contributor of the social tissue of coastal areas. Indeed, as an easy consequence, the consensus of this component of society was often chased at various time by national politicians and it can be identified among the main causes of the inaction of competent authorities or at least an obstacle to implement a radical reform for public decision-makers (as demonstrated

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<sup>12</sup> As stated by Article 1 of Regional Law no. 22/2006

by the numerous *ex lege* estensions and derogation to the normative). Nonetheless, it is equally true that economic seaside operators cannot be condemned to a systematic uncertainty with the impossibility of carrying on a stable business activity, especially considering the family business-type structure of many beach establishments.

In this way, a sort of protection mechanism can be structured taking into consideration the arguments of existing entrepreneurs, without prejudice to the application of appropriate forms of disclosures, that may be present in different regional regulatory frameworks, capable of encouraging competition in the phase following the expiry of concession and the presentation of projects in competition with each other. Benetazzo et al. advice two types of intervention that can be made in this direction:

- An accurate disposition for the transitional phases, in compliance with art. 12 of Directive 2006/123 and of the necessary time to implement municipal plans for the use and enhancement of maritime public domain.
- The introduction of forecasts, both general and individual tender-related, in order to consider not only the legitimate awarding of concessions for those who have invested based on the previous contract by confiding in the possibility for renewal, but also the general interest, as established by the Service Directive.

Indeed, the latter directive does not exclude systematically the possibility to preserve in a reasonable manner the financial exposure matured by the holders of concession, specifically if they made investments in a period when they could rely on the preferential right or the extensions set by previous regulation.

In this respect, the case of the municipality of San Michele al Tagliamento and its fraction Bibione, in the province of Venice, has been cited as one of the finest examples during recent years. Being one of the first in Italy to apply a public call for tenders for public beach, the procedure led to a long-term issuance of 20 years in favor of the outgoing operator. However, the competitive approach pushed the company (that comprised a wide range of shareholders included the Municipality) to enhance the proposed investments and projects for development and preservation without hindering a certain business continuity to the given operator. In fact, the possibility to apply simplified procedures than public tenders should not be deleted as it is clear how the outgoing concessionaire probably represents the best candidate in the perspective of the acquired professionalism and know-how also to perform the necessary activity of safeguarding.

Finally, both general and individual procedures should determine a duration of license to allow the holder to get a return on his investment without the need of incurring in a further renewal, whether automatic or not. Nonetheless, the determination of concession's length can be alternately determined, not based on time required to recover the investment made but rather by actioning these values

upon public tendering. In this way, together with a shortening of maximum length, duration of concessions can be reduced avoiding excessive lengths that frequently tend to create limitations and constraints to market accession.

### **4.3 Environmental Preservation and the French Model**

A reformed system should also consider environmental protection as a priority, especially in a long-term perspective of territorial enhancement of marine heritage. In this sense, an overall harmonization of the various regulations concerning marine and coastal areas is strongly required. Especially, the use of public beach must be ruled with the aim to avoid their depletion and permit their preservation and development, simultaneously without undermining the exercise of numerous essential economic activities such as tourism, transport, trade and agriculture.

As regards the Marche Region, the legislation made a step forward principles of safeguarding in the integrated plan of regional management *Piano di Gestione Integrata delle Aree Costiere*, recently updated in 2019. It provides at art.7 that “(...) the region regulates the use of areas of maritime domain in order to guarantee an adequate balance between safeguarding of environmental and landscape aspects of the coastline and the development of touristic and recreational activities that takes place” and at art. 11 on preservation of coastal environment that “It cannot be issued new concessions in areas of particular value for landscape and environmental aspects and of low territorial impairment (...), in zones of special protection and

sites of communitarian value, as well as in river protection zones (...)", besides the provision made by art. 12 on the minimum percentage that must be respected by coastal municipalities for free access beach (25% of the whole municipal seafront). Nonetheless, the damage provoked to the environment by bathing facilities is quite huge as it transforms the beach in a totally different landscape and contributes to modify its ecosystem causing a significant loss of biodiversity. The minimization of such impact should be the forefront of an accurate management of beach touristic and recreational sector. With this regard, the involvement of seaside operators is envisaged as they could be proactive for environmental protection with precise tasks on manutention and safeguarding also on the spaces next to the concession area.

Eventually, public authorities can also provide the possibility to operate direct intervention in order to guarantee the enhancement of coastal areas. Indeed, we see how this already happens in France especially through the *Conservatoire du Littoral*. Created in 1975, the latter is a public institute that protect national coastal environment, with purposes of preservation of natural spaces and maritime and lakeside landscapes. It acts purchasing threatened land mostly through consensual agreements and exceptionally by expropriation of property or bequest of private citizens, in this way subtracting it from urbanistic pressure. Purchase programs are drafted by the administrative board that after the successful detection of a site, consults the interested municipality to communicate the intention of a land

acquisition. Then, independently of the applied procedure the purchased lands now under control of the Conservatoire become inalienable. The authority funds the intervention financially and after the needed works of environmental restoration, it entrusts the management of the given area to the municipality or other local agency that administer it with respect of requirements prefixed by expertise given by professionals in environmental field, especially for agriculture and tourism. Then, they are asked to produce a management plan with a series of objectives to fulfil (in accordance with principle of promoting biodiversity, public use and sustainable economic activities) and a program of works for environmental restoration (such as dunes and water management). The Conservatoire carries out its activity on about 80.000 hectares for 1.200 km of coastline on national territory and overseas and in the annual budget, almost the entirety of resources is reserved to purchasing and maintenance of controlled sites with this amount being covered by the French state but also local agencies and European Union, besides private contributors.

In this sense, the provision of a similar solution could be envisaged also for the Italian system through the institution of funds for coastal preservation and enhancement, either on a national or regional scale. Currently the normative<sup>13</sup> provides the possibility for municipalities to award its own maritime properties of public domain to a public property fund to whom is entrusted the enhancement and

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<sup>13</sup> by art. 33 of *d.l. 98/2011* and ratified by *law 111/2011* that enshrines the institution of a national property fund.

the management of state-owned assets on which it can also issue concessions. Being obliged to respect principles such as transparency and impartiality, the fund is not obliged to follow the common procedures on public contract. Hence, the latter represents a starting point for an approach similar to that of France. While it can represent a residual instrument in the short-term, a strengthening of the latter is advisable starting from a share capital increase (which amounted to € 2 million at the foundation), as it could become a significative tool for environmental preservation in a long-term perspective.

#### **4.4 An Excessive Fragmentation of the Governance**

Equally, the existing governance poses a problem on marine state-owned asset management as it results to be fragmented and composed by many actors. In this respect, criticalities are found on the division of responsibility and control mechanism.

At the current status, a subdivision of competences is going on among the State, that maintain only residuals duties, the regions and municipalities. However, the competence on turnovers produced by public domain belongs exclusively to the national level, in its quality of owner of public goods. The only exceptions are represented by concessions granted by Maritime Authority and regions with special status such as Sicily, to whom it belongs property on maritime domain. Hence, this process of “federalization” of marine state-owned assets was developed only

partially with a separation between administrative responsibilities and proprietorship on proceeds generated by those activities. Such fragmentation leads to a complex functioning of the whole administration mechanism. The attribution to local authorities of those competences implies also administrative costs for which a remuneration should be awarded. In this respect the competent regional authority of Marche (in conformity with other regional regulations) provides a surtax equal to 10% of the total amount of concession fees but no proceeds' attribution is provided for competent coastal municipalities. In this sense, a participation to corresponding turnovers made by concessions is envisaged for coastal regions and municipalities to achieve a harmonization of the federalism model and it should happen in proportion of the activity performed.

In a similar way, surveillance and control are necessary for the purpose of an adequate monitoring and tax collection. Subjects involved in these activities at the national level (Ministero delle Infrastrutture e dei Trasporti, Ministero dell'Economia e Finanze and Agenzia del Demanio) need a better coordination with subject involved at the peripheral level. At today, the Italian government makes available through the Sid informative system (Sistema Informativo del Demanio) a tool of support for administrative and fiscal management of maritime public domain. A reinforcement of the latter is envisaged as it would improve the capacity of competent authorities also in the effective recovery of entitled fees. In this sense, accuracy of information and quality of data present in the Sid database constitute

the instrument of reference for management of maritime state-owned assets. In recent years, the Italian Court of Auditors (Corte dei Conti) has pointed out the insufficiency of the system on several occasions. It must be said that functioning of the Sid underwent difficulties related to the passage of management competencies of early 2000s and a certain indifference and obstruction of sector operators<sup>14</sup>. Much has been made during last years, however further improvements must be encouraged in order to build an effective platform that act as a contact point for all subject interested from regions and municipalities to national government. Especially, in the perspective of a decentralization process of administrative power, local authorities seem to detain a better knowledge of territorial reality and its socioeconomic characteristics and therefore result more suitable to implement measures specific to the context.

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<sup>14</sup> In this respect, see the document “Brevi note sulla recente delibera N. 29-2008 della Corte dei Conti relativa alla gestione della riscossione dei canoni nelle concessioni del demanio marittimo” by Girone G.

## CONCLUSIONS

In this research, I started describing the territory of Marche Region in which a trend towards a depletion of the coastal environment emerged in the last seventy years due mainly to urbanization process. Along with this, a regional economy in which the business of beach recreational service plays a strategic role is also outlined. On the other hand, a fragmented legal framework regarding beach concessions emerged, moving over decades in the direction of continuous addition of new regulations with maintenance of the previous discipline without an adequate reorganization. The second chapter described the beach concession system where it emerged that an excessive quantity of public beach is at disposal of touristic-recreational concessions and the related price mechanism as determined by disposition of *d.l. 400/1993* generates inadequate turnovers if compared with the scarcity of the good and income earned by the business of seaside facilities. Afterwards, a meta-analysis applied to the coastline of Civitanova Marche gave us meaningful insight on the potential recreation value of the area and the current state of local beach concessions for seaside establishments. In view of the obtained results, the given pricing policy becomes difficult to justify. As described in the last section, the necessity to act on the current allocation system of public beach and concession issuance seems inevitable. Price and quantity must be recalibrated and a reform towards a more frequent application of public tenders is needed. Along

with this, an improvement of governance and a greater emphasis on the question of environment and landscape preservation are required.

Finally, an additional comment must be given with respect to the dramatic situation of Covid-19 pandemic that we are unfortunately living. The great loss of human lives and the unprecedented downfall of global economies will make this period a dark page of modern history. However, the next years are promised to be a period of radical changes and great public spending, especially thanks to the auxiliary resources that will probably come from the Next Generation EU program. The latter could represent the most favorable context to enable a comprehensive reform of the Italian beach concession system with the necessary funding and most importantly, the positive effect that a supranational institution like the European Union can instill also against some lobbying behaviors rooted in the National context. In this sense, a reform process might be pursued according to EU objectives of market competitiveness and environmental sustainability. Nonetheless, these are just hopeful suppositions for the moment and only the coming years will tell us if they eventually turned into reality.

## APPENDIX

TABLE 13: Definition of variables for Benefit Transfer Analysis of Chapter 3.

VARIABLE	COEFFICIENT	UNIT OF MEASUREMENT	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16
Constant	-7.987		-7.987	-7.987	-7.987	-7.987	-7.987	-7.987	-7.987	-7.987	-7.987	-7.987	-7.987	-7.987	-7.987	-7.987	-7.987	-7.987
CV – open ended	-0.944	binary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TCM – zonal		2 binary	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
TCM – individual and RUM	0.937	binary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contingent behavior	-1.639	binary	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
WTP for improvement	0.863	binary	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Unpublished	-1.372	binary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Year of primary data	0.144	years after first valuation (1974)	45	45	45	45	23.9	23.9	23.9	23.9	45	45	45	45	23.9	23.9	23.9	23.9
Estuary		1 binary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Beach		2 binary	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Reef		2 binary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreational fishing		2 binary	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Non-extractive recreation		3 binary	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
GDP per capita (ln)	0.47	2013 US\$/year (ppp, ln)	10.35615	10.35615	10.35615	10.35615	10.35615	10.35615	10.35615	10.35615	10.35615	10.35615	10.35615	10.35615	10.35615	10.35615	10.35615	10.35615
Population density (ln)	0.454	inhabitants per km2 (ln)	6.818924	6.818924	6.818924	6.818924	6.818924	6.818924	6.818924	6.818924	6.818924	6.818924	6.818924	6.818924	6.818924	6.818924	6.818924	6.818924
Low human development		2 binary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Anthropogenic pressure (ln)	-0.238	nutrients concentration (ton/km2/year, ln)	3.26	3.26	6.11	6.11	3.26	3.26	6.11	6.11	3.26	3.26	6.11	6.11	3.26	3.26	6.11	6.11
Accessibility (ln)	-0.534	travel time to nearest large city (hours, ln)	-0.40547	-0.40547	-0.40547	-0.40547	-0.40547	-0.40547	-0.40547	-0.40547	-0.40547	-0.40547	-0.40547	-0.40547	-0.40547	-0.40547	-0.40547	-0.40547
Marine biodiversity	0.29	shannon index of biodiversity	2	1.38	2	1.38	2	1.38	2	1.38	2	1.38	2	1.38	2	1.38	2	1.38
Heating degree months	-0.008	degrees Celsius	67.4	67.4	67.4	67.4	67.4	67.4	67.4	67.4	67.4	67.4	67.4	67.4	67.4	67.4	67.4	67.4

TABLE 14: Value computation of Setting A.

	OUT1	OUT2	OUT3	OUT4	OUT9	OUT10	OUT11	OUT12
	-7,987	-7,987	-7,987	-7,987	-7,987	-7,987	-7,987	-7,987
	0	0	0	0	0	0	0	0
	1,862	1,862	1,862	1,862	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	-1,639	-1,639	-1,639	-1,639
	0,863	0,863	0,863	0,863	0,863	0,863	0,863	0,863
	0	0	0	0	0	0	0	0
	6,48	6,48	6,48	6,48	6,48	6,48	6,48	6,48
	0	0	0	0	0	0	0	0
	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86
	0	0	0	0	0	0	0	0
	1,697	1,697	1,697	1,697	1,697	1,697	1,697	1,697
	3,387	3,387	3,387	3,387	3,387	3,387	3,387	3,387
	4,86739	4,86739	4,86739	4,86739	4,86739	4,86739	4,86739	4,86739
	3,095792	3,095792	3,095792	3,095792	3,095792	3,095792	3,095792	3,095792
	0	0	0	0	0	0	0	0
	-0,77914	-0,77914	-1,46029	-1,46029	-0,77914	-0,77914	-1,46029	-1,46029
	0,216518	0,216518	0,216518	0,216518	0,216518	0,216518	0,216518	0,216518
	0,58	0,4002	0,58	0,4002	0,58	0,4002	0,58	0,4002
	-0,5392	-0,5392	-0,5392	-0,5392	-0,5392	-0,5392	-0,5392	-0,5392
<b>LN(Y)</b>	15,60336	15,42356	14,92221	14,74241	12,10236	11,92256	11,42121	11,24141
<b>Y (2003\$)</b>	5976582	4993060	3024358	2526661	180296,8	150626,6	91236,42	76222,3
<b>Y (2020\$)</b>	8408731	7024967	4255110	3554877	253667,9	211923,6	128364,8	107240,7
<b>Y (current €)</b>	5640638	4712400	2854359	2384638	170162,3	142159,9	86108,02	71937,85
<b>MIN</b>	71937,85		<b>REF.VALUE</b>	4712400				
<b>MAX</b>	5640638							

In Setting A the reference value is defined by Output 2 (OUT2), the lower bound by Output 12 (OUT12) and the upper bound by Output 1 (OUT1).

TABLE 15: Value computation of Setting B.

	OUT1	OUT2	OUT3	OUT4	OUT5	OUT6	OUT7	OUT8	OUT9	OUT10	OUT11	OUT12	OUT13	OUT14	OUT15	OUT16
	-7,987	-7,987	-7,987	-7,987	-7,987	-7,987	-7,987	-7,987	-7,987	-7,987	-7,987	-7,987	-7,987	-7,987	-7,987	-7,987
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1,862	1,862	1,862	1,862	1,862	1,862	1,862	1,862	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	-1,639	-1,639	-1,639	-1,639	-1,639	-1,639	-1,639	-1,639
	0,863	0,863	0,863	0,863	0,863	0,863	0,863	0,863	0,863	0,863	0,863	0,863	0,863	0,863	0,863	0,863
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6,48	6,48	6,48	6,48	3,4416	3,4416	3,4416	3,4416	6,48	6,48	6,48	6,48	3,4416	3,4416	3,4416	3,4416
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1,697	1,697	1,697	1,697	1,697	1,697	1,697	1,697	1,697	1,697	1,697	1,697	1,697	1,697	1,697	1,697
	3,387	3,387	3,387	3,387	3,387	3,387	3,387	3,387	3,387	3,387	3,387	3,387	3,387	3,387	3,387	3,387
	4,8673895	4,86739	4,86739	4,86739	4,86739	4,86739	4,86739	4,86739	4,86739	4,86739	4,86739	4,86739	4,86739	4,86739	4,86739	4,86739
	3,0957915	3,095792	3,095792	3,095792	3,095792	3,095792	3,095792	3,095792	3,095792	3,095792	3,095792	3,095792	3,095792	3,095792	3,095792	3,095792
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	-0,77914	-0,77914	-1,46029	-1,46029	-0,77914	-0,77914	-1,46029	-1,46029	-0,77914	-0,77914	-1,46029	-1,46029	-0,77914	-0,77914	-1,46029	-1,46029
	0,2165184	0,216518	0,216518	0,216518	0,216518	0,216518	0,216518	0,216518	0,216518	0,216518	0,216518	0,216518	0,216518	0,216518	0,216518	0,216518
	0,58	0,4002	0,58	0,4002	0,58	0,4002	0,58	0,4002	0,58	0,4002	0,58	0,4002	0,58	0,4002	0,58	0,4002
	-0,5392	-0,5392	-0,5392	-0,5392	-0,5392	-0,5392	-0,5392	-0,5392	-0,5392	-0,5392	-0,5392	-0,5392	-0,5392	-0,5392	-0,5392	-0,5392
LN(Y)	15,603359	15,42356	14,92221	14,74241	12,56496	12,38516	11,88381	11,70401	12,10236	11,92256	11,42121	11,24141	9,063959	8,884159	8,382809	8,203009
Y (2003\$)	5976582,1	4993060	3024438	2526661	286346,9	239224,9	144901,5	121056,1	180296,8	150626,6	91236,42	76222,3	8638,286	7216,746	4371,272	3651,924
Y (2020\$)	8408730,8	7024967	4255110	3554877	402874,8	336576,6	203868,6	170319,5	253667,9	211923,6	128364,8	107240,7	12153,6	10153,57	6150,146	5138,061
Y (current €)	5640638,3	4712400	2854359	2384638	270251,4	225781,1	136756,6	114251,5	170162,3	142159,9	86108,02	71937,85	8152,727	6811,092	4125,563	3446,649
MIN	3446,6492		REF-VALUE	225778,1												
MAX	5640638,3															

In Setting B the reference value is defined by Output 6 (OUT6), the lower bound by Output 16 (OUT16) and the upper bound by Output 1 (OUT1).

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